Title: Creating a functional play framework for children with autism and severe learning difficulties

Name Christina Kuegel

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Christina Kuegel

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Christina Kuegel

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Abstract

Play is an important contributor to children's development: it reflects, reinforces, and results in development (Johnson, Christie, Wardle, 2005). However, the tools available to support planning and measurement of play are not sufficiently detailed or focused on children with autism and severe learning difficulties (SLD). Play for children with autism is consistently identified as restrictive and repetitive. Although extensive research examines symbolic play, the content and structure of functional play, which is considered a valuable precursor of symbolic play, is rarely the subject of focused research (Williams, 2003; Lifter, Foster-Sanda, Arzamarski, Briesch, & McClure, 2011). Given the developmental potential that play presents, the aim of this study was to examine the functional play presented by children with autism and SLD, with a view to designing a play framework that enables teachers to support functional play development in the classroom.

A pragmatic mixed methods approach was adopted across a three-stage study in three schools. Study 1 provides the background for creating a functional play framework, while Study 2 focuses on the creation of the framework through objective observations of the play activity of a total of 27 children with autism and SLD, as well as interviews with nine classroom teachers. Study 3 was a process of trialling the framework in two schools and collaborating with eight teachers to finalise the functional play framework, in particular by considering its usability.

Data collected across the three studies provided a description of functional play that suggests it is more complex than traditionally defined. Four key areas of functional play were identified: interacting with one object; interacting with two (or more) objects; interacting with self; and interacting with the environment. Additionally, 12 subcategories were established as components related to functional play. Teachers reported that they could use the framework to baseline play, set targets and measure play progression for children with autism and SLD. The

framework was also identified as a tool that supports classroom management and continuing professional development.

The proposed framework facilitates the identification of small increments of progress and extends on other available play frameworks. By developing detailed descriptions of the play that children with autism and SLD present, the framework provides a greater ability to identify precise deficits and, more specifically, to target support in the area of play. Additionally, the collaborative approach with classroom teachers provides diverse viewpoints but also begins to merge the gap between researchers and practitioners in order to ensure a useful resource. Recommendations for further descriptive accounts, greater involvement of classroom professionals in the development of resources and additional trials of the framework are acknowledged.

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List of frequently used abbreviations

ASD	Autistic Spectrum Disorder
CPD	Continuing Professional Development
CPRT	Classroom Pivotal Response Teaching
DCSF	Department for Children, Schools and Families
DfE	Department for Education
DPA	Developmental Play Assessment
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, 5th edition
EYFS	Early Years and Foundation Stage
GT	Grounded Theory
ICD-10	International Statistical Classification of Diseases and Related Health Problems, 10th edition
ID	Intellectual Disability
MMR	Mixed Methods Research
NASEN	National Association for Special Educational Needs
OFSTED	Office for Standards in Education
PIVATS	Performance Indicators for Value Added Target Setting
PMLD	Profound and Multiple Learning Difficulties
POKIT	Play Observation Kit
POS	Play Observation Scale
PRT	Pivotal Response Training
QTS	Qualified Teacher Status
SEN	Special Educational Needs
SEND	Special Educational Needs and Disability
SLD	Severe Learning Difficulties
TEACCH	Treatment and Education of Autistic and Communication related Handicapped Children
TPBA	Transdisciplinary Play-Based Assessment

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1. Chapter 1: Introduction

1.1 Introduction

Play is an element associated with childhood and is widely recognised for its potential benefits for all children. Children typically progress in their development as their play becomes more complex, diverse and generally more sophisticated (Casby, 2003a; Piaget, 1962; Ungerer & Sigman, 1981). Play provides opportunities to reflect on, reinforce, and/or result in development (Johnson, Christie, & Wardle, 2005). However, many children with a diagnosis of autism present restricted and repetitive play (Wing, 2003). Impairments in play for children with autism, alongside the potential benefits of play, suggest that children with autism are potentially missing an important contributor to their development. Both large sums of money and practitioners' time are spent annually on play interventions to support children with autism, and this investment has been shown to increase diversity, frequency and time spent playing (Luckett, Bundy, & Roberts, 2007).

The current study originally aimed to implement a play intervention, Classroom Pivotal Response Teaching (CPRT) (Stahmer, Suhrheinrich, Reed, Schreibman, & Bolduc, 2011), that would specifically support functional play for children with autism and severe learning difficulties (SLD). However, through the pilot study, it was quickly identified that teachers encountered difficulties implementing the intervention. This was primarily because they did not have a method to baseline and then measure progress in play. Consequently, the study altered direction to examine the functional play behaviours of children with autism and SLD in order to create a play framework that enables teachers to identify, analyse and measure functional play within the classroom.

1.2 Research focus

Restricted and repetitive play is a defining feature of autism. However, the literature continues to debate the extent of this specific characteristic. The focus is frequently on the differences in symbolic play, with some research focused on functional play (Jarrold, 2003; Williams, 2003). Very few studies focus solely on functional play (Williams, Reddy, & Costall, 2001); more commonly, functional play is included as a component of a wider study (Holmes & Willoughby, 2005; Naber et al., 2008; Thiemann-Bourque, Brady, & Fleming, 2012). The results indicate diverse findings and do not appear conclusive regarding the specific degree of deficits in either symbolic or functional play for children with autism.

Claims are made that the differences in results could stem from the definitions and precision of the scales used to measure the play presented (Libby, Powell, Messer, & Jordan, 1998; Williams et al., 2001). Additionally, Pierucci, Barber, Gilpin, Crisler, & Klinger (2015) recently claimed that the standardised play measures used to assess play actually measure diverse components of play, therefore suggesting additional discrepancies in measurement tools. However, in order to support play and potentially develop play through interventions, it is vital to ensure that there is a clearly defined scale on which to baseline and measure progress (Lifter, 2008). Furthermore, because previous research is focused on establishing the specific deficit, there is limited research that identifies the content and structure of the play presented (Williams, 2003). Therefore, until studies identify precisely what actions are involved in functional play, it is possible that inconsistencies in results will remain and effective provision for play will be limited.

Additionally, a diagnosis of autism and SLD presents unique characteristics that are not identical to a diagnosis of autism (Jordan, 2013). The comorbidity of these classifications suggests that children need support in all areas of the curriculum and that they also present characteristics associated with autism. There is very limited research directly on play for

children with a diagnosis of autism and SLD, although some studies on play do include children with low cognitive ability (Thiemann-Bourque et al., 2012; Williams et al., 2001). This is likely because the research is focused on symbolic play and children with a diagnosis of autism and SLD will not have the cognitive ability to engage with symbolic or pretend play. Children with a diagnosis of autism and SLD are more likely to be in the early stages of play, such as the stage of functional play.

Due to the limitations in play skills presented by children with autism, alongside the developmental potential that play presents, the aim of this study is to examine the functional play presented by children with autism and SLD in order to design a play framework that enables teachers to support functional play development in the classroom. The three main objectives of the study are:

1. Describe and analyse the functional play actions completed by children aged 3-11 and diagnosed with a combination of autism and SLD.
2. Create a framework for identifying and analysing functional play skills as exhibited by children with autism and SLD.
3. Collaborate with teachers to generate a functional play framework that enables them to support the development of functional play skills of children with autism and SLD in the classroom.

This study has adopted a pragmatic mixed methods approach. Objective observations of children with autism and SLD at play were conducted alongside interviews with teachers. The initial interviews provided teachers' perspectives of the play that children with autism present, and the use of grounded-theory analysis of the observations provided detailed descriptions of the functional play which underpinned the creation of a play framework. The functional play framework was then further developed by providing the teachers with an opportunity to trial the framework and discuss their individual views on its usability, reliability

and validity. The final collaborative interview informed the framework and once again the functional play framework was altered and finalised. (See Appendix 18: Final functional play framework.) For clarity in terminology it is recognised that the term autism is used across the study to identify autism spectrum disorder as defined by the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5) (American Psychiatric Association [APA], 2013).

1.3 Value of this research

This research is important for two reasons: it provides teachers with a resource to set play targets, baseline and measure progress, and it enables them to precisely describe the functional play behaviours presented by children with autism and SLD.

In England, where the current study was conducted, teachers have a responsibility to support the individual learning and progress of all children (Children and Families Act 2014; Department for Education [DfE], 2015). Schools are expected to go beyond providing and educating children with SEND and are required to ensure the best possible outcomes (Children and Families Act 2014; Wearmouth, 2017). Teachers are expected to identify the needs of all children and to implement a process of assess, plan, do, review (DfE, 2015). This cycle suggests a value in understanding the needs of the children to enable effective planning and learning (Wearmouth, 2017). However, the tools available to support planning and measurement of play are not sufficiently detailed or focused on children with autism and SLD. Furthermore, recent reviews of general assessment measures for children with SLD claim the current methods used in classrooms in England are not fit for purpose (Rochford, 2016). The general assessment tools and play assessment measures currently available do not demonstrate precision or "small steps" in development (Imray & Hinchcliffe, 2012, p. 153). Therefore, by providing a framework that examines and defines the smaller components of functional play,

teachers will have a tool that can measure small increments in development and an aid to help them effectively support play for children with autism and SLD.

The results of this study contribute to the consistently identified need for further descriptive accounts of play (Libby et al., 1998; Lifter, 2000; Thiemann-Bourque et al., 2012) and collaboration with professionals (Parsons et al., 2013; Pellicano, Dinsmore, Charman, 2014a). Importantly, this study engaged with professionals working with the autism community. This appears to be the only study to create a functional play framework based on a descriptive analysis of functional play that is informed by teachers' perceptions of play for children with autism and SLD.

1.4 Structure of the thesis

The thesis begins with an exploration of the two key components of the research; in general terms, these are play, and play for children with autism. The review of the literature establishes the background to the importance and necessity of the current research project and identifying strengths and limitations in current play research. The literature review is followed by a discussion of the overall approach towards the research in the methodology overview chapter, which explores the views that underpinned the design of the research study. The methodology chapter introduces the three studies implemented; these studies are then independently discussed in separate chapters. Study 1 discusses the pilot study and explains the rationale for changing the focus. Study 2 identifies the process of collecting data to create the functional play framework, and Study 3 explores the process of trialling and finalising the framework. The thesis brings the three studies together with the discussion chapter and then presents an overall conclusion. The contribution to knowledge is specifically discussed in the concluding chapter.

2. Chapter 2: Literature Review

2.1 Introduction

The literature review will consider the complexities in play research and the need to further investigate the content and structure of functional play for children with autism and severe learning difficulties (SLD). The key search engines and search terms are identified in Table 1. The literature was initially selected based on the appearance of the search terms in the title or abstract of the texts that were identified.

Table 1: Literature review search engines and search terms

Key Search Engines	Key Search Terms
EBSCOhost, PsycINFO, PsycArticles, SocIndex, ASSIA, Teacher Reference Centre, ERIC, British Education Index, Education research Complete, Scopus, JSTOR, Google, Google Scholar, ScienceDirect, Pubmed Central, DOAJ, CINAHL, ZETOC	Autism, ASC, ASD Severe learning difficulties (SLD), learning difficulties, learning disabilities, intellectual disabilities Play, playing, functional play, relational play, object play, play intervention, play stages, play categories

2.2 Defining play

Definitions of play range from those that suggest play is too complex to define, to those that define play by specific characteristics. A critical review of the literature reveals the vast complexity and variations in viewpoints when discussing play and it appears that there is not one agreed-upon definition. However, this study acknowledges the debates and identifies a working definition to ensure clarity and comparability with other studies (Andrews, 2012).

Play is often identifiable through observation, but clarifying the precise definition can be difficult because the term can be used as a noun, verb or adjective and therefore provokes confusion among those hearing and using the word (Andrews, 2012). Complexity also arises due to the diversity of the players involved, the variety of the possible play equipment and the range of research disciplines (Sutton-Smith, 1997). Additionally, there are difficulties in substantiating a claim for the specific definition with empirical evidence (Barnett, 1990). Therefore, it could be argued that play is far too complex to define. This is emphasised by the great play theorist Huizinga (1949, p. 7), who claimed that "play is a function of the living, but is not susceptible to an exact definition either logically, biologically or aesthetically". However, Huizinga (1949) does proceed to define play with several characteristics: voluntary, not ordinary, fully absorbing, secluded, regulated with order, and not for profit.

Rather than aiming at an absolute definition, it may be preferable to accept some of the "haziness and plurality" that can be associated with play (Eberle, 2014, p. 218). This is because a definition of play that is "too rigid… would destroy its very essence" (Rudan, 2013, p. 1385). Additionally, Turnball & Jenvey (2006, p. 540) have suggested that "attempting to describe play as a unitary phenomenon with few distinguished features is inappropriate". However, there is an important question regarding how play can be supported if a definition is not available (Andrews, 2012). Consequently, ongoing attempts are made to define play characteristics. For example, the frequently referenced work of Rubin, Fein, & Vanderberg (1983) has characterised play as a behaviour that is intrinsically motivated, focused on the process instead of the result, nonliteral, free from externally imposed rules, and involves active engagement and control by the players. Burghardt (2005, p. 382) also attempted to define the characteristics of play through five criteria that must be met in order to define a behaviour as play:

1. incompletely functional in the context expressed;
2. voluntary, pleasurable, or self-rewarding;
3. different structurally or temporally from related serious behaviour systems;
4. expressed repeatedly during at least some part of an animal's life span; and
5. initiated in relatively benign situations.

The complexity is clearly recognisable and it appears there is not one "right" perspective; rather, each definition relates to different dimensions of play (Beyer & Gammeltoft, 1999) and might be best characterised "as a multidimensional phenomenon encompassing several criteria specific to different forms of play" (Turnball & Jenvey, 2006, p. 540).

In summary, although the literature provides characteristics of play and even considers the feasibility of having one specific play definition, overall it does not identify a fixed definition of play. In order to ensure comparability when discussing research, Eberle (2014) and Andrews (2012) suggest adopting a working definition. This is further emphasised by Luckett et al. (2007), who have examined claims made by researchers measuring changes in play behaviours of children with autism. They concluded that play intervention studies need to consider the definition of play within their research and not allow the intervention to supersede the definition of play. Although Luckett et al. (2007) were exploring play interventions, there is consistent discussion regarding the complications of comparing research that is not measuring the same entity. This further highlights the importance of establishing a working definition when conducting research on play, so that comparability and clarity are enabled.

The working definition for play that will be used in the current study is that of Luckett et al. (2007) since it encompasses the range of definitions and has been specifically used in relation to play research on children with autism. Luckett et al. (2007, p. 384) defined play as "internally motivated, voluntary, spontaneous and flexible, involves attention to the process of playing rather than to any end product, actively engages and is controlled by the player,

involves at least some freedom from the constraints of reality, and is safe and enjoyable". Additionally, this study accepts that there is not one clear definition and acknowledges the "haziness and plurality" of play as described by Eberle (2014, p. 218).

2.3 The value of play in development

The value of play in child development has been viewed differently across time. Traditional views saw play simply as a means of releasing or replenishing energy levels (Ellis, 1973), whereas more recent views have emphasised the value of play within education and development (Lifter, Foster-Sanda, Arzamarski, Briesch, McClure, 2011). It could be argued that the value of play in child development is accepted almost worldwide (Whitebread, Coltman, Jameson, & Lander, 2009), whether that value is simply enjoyment for its own sake or stems from play's potential to reflect, reinforce, and/or result in development (Johnson et al., 2005). Play has a strong value in education and it is identified as a right under Article 31 of the Convention on the Rights of the Child (1990): "That every child has the right to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts." This study identifies a value in play for reflecting, reinforcing and resulting in development, while also acknowledging limitations across the play research.

2.3.1 Play reflects development

A child's development can be identified through the "window" of play (Johnson et al., 2005, p. 127). By observing potentially unique patterns in play, the understanding of a child's physical, social, emotional and cognitive development can be supported (Fawcett & Watson, 2009). Consequently, the emphasis on observation of play has become a vital component in education for the identification of SEND and assessment of development (Vig, 2007).

However, multiple variables can impact on the observation of play (Sutton-Smith, 1997). For example, the observer can influence the outcome through inexperienced observation approaches, interruptions or engagement in the play. Therefore the "window" of viewing play can be distorted by the observer's actions and beliefs, and it may consequently be limited in accuracy.

2.3.2 Play reinforces development

Play as a space to reinforce development can be seen through practice opportunities and specific interventions. During play, a child might be exposed to a new object, action, idea, event or person and begin to consolidate, practise and master learned skills (Smith, Cowie, & Blades, 2011). Piaget (1962) suggested that children seek equilibrium or adaptation through assimilation and accommodation. Assimilation implies that the child is attempting to accept any new experience and fit it into their current schemas or current and evolving mental operations. Accommodation implies that the child begins to modify and reshape their current understanding. This process is complex, not least because assimilation and accommodation may not be distinguishable from each other, and the process may not be "effective if it [assimilation] functioned alone" (Donaldson, 1978, p. 132). However complex, the opportunity available during play to practise and develop skills is useful.

Reinforcing development in play can also be identified through the increased number of play interventions. For example, during play the language used can be reinforced and provide opportunities for children to use a varied vocabulary. Weisberg & Zosh (2013) have discussed the research on using play to support language, noting that multiple studies have used play as a space to reinforce vocabulary and measured improvements in as little as two weeks. Additionally, interventions such as pivotal response training (PRT) have been used to reinforce play skills. Stahmer (1995) used PRT to develop symbolic play and uncovered more advanced

play skills after the play intervention was implemented. This suggests that the play interventions provide opportunities for reinforcing not only general skills, but also specific play skills. However, it should be recognised that a child must be able to interact socially with another child or adult; for some children, particularly those with autism, this interaction may be difficult (Wolfberg, Bottema-Beutel, & Dewitt, 2012). This potentially reduces the opportunities to reinforce play. Additionally, identifying the specific method or approach to support the child can be problematic and different for particular children (Wood, Bruner, & Ross, 1976; Zaretskii, 2010).

2.3.3 Play results in development

An extensive amount of literature on cognitive, physical, social and emotional development suggests play can result in development (e.g., Tannock, 2010; Weisberg & Zosh, 2013). This can be demonstrated by studies that claim other areas of functioning improve when children engage in play. For example, correlational and experimental studies suggest that play can aid in cognitive development by laying the groundwork for later academic success in reading, writing, mathematics, and science (Else, 2009).

A child's physical development can progress through play that involves rough and tumble or physical activity (Tannock, 2011). Physical play can increase a range of motion, agility, coordination, balance, flexibility, and fine and gross motor skills. An ordinary game of tag can create healthy bodies and develop muscles and coordination (Ginsburg, 2007). Additionally, rough and tumble play, although a relatively recent area of play research, was perceived by teachers as a means of releasing energy, and by parents as a method of building confidence and personal development (Tannock, 2010), suggesting that physical play activity can result in development.

Play is a child's most comprehensive form of expression: through play, a child can expand and advance language (Dominguez, Ziviani, & Rodger, 2006) and communication (Weisberg & Zosh, 2013). In the earliest stages of development, children begin to play with language as they make sounds and begin to put words together (Johnson et al., 2005). Words also represent actions and objects, and therefore they are representations of these ideas. Consequently, there have been ongoing links between the development of language and symbolic play (Ungerer & Sigman, 1981). However, the specific process of this development is unclear (Orr & Geva, 2015) and Weisberg & Zosh (2013, p. 44) have emphasised the complexity that arises from considering "whether playing causes children to develop better language skills, whether children with better language skills play more, or whether a third variable is responsible for both better language skills and increased play".

Furthermore, children progress emotionally and socially as they begin to learn about the world around them by interacting with the environment and other people (Wood & Attfield, 2005). Research on the social aspects related to play has consistently been undertaken since Parten's (1932) early descriptions of the social aspects of children's play. Children mirror each other during play, thereby developing their personal experiences and learning from others (Beyer & Gammeltoft, 1999; Moyles, 2005). During social interactions, children share and use vocabulary, and they negotiate, resolve conflicts and practise decision-making skills (Johnson et al., 2005; Wolfberg, 2009). A child learns to read and understand emotions, body language and expressions (Sayeed & Guerin, 2000).

Overall, research has repeatedly suggested the significance of play in relation to a child's development, including development in cognitive, physical, emotional, linguistic and social progress. However, this view is not accepted by all researchers (Johnson et al., 2005; Wood & Attfield, 2005). Sutton-Smith (1997, p. 36), for example, has discussed how the idea of play and a relationship with development has become an accepted concept that instigates an

automatic assumption for drawing connections between a "play process and a developmental process". Suggesting that the benefits might not be as universal as claimed, he questioned the potential for research to claim the immense impact that play has on development. He noted multiple variables that may confound the research, including relationships that are established during play interventions, the impact of personal play perspectives, experimenter bias and the possibility that many studies do not hold true to the definition of play. Additionally, through an extensive review of the literature, Lillard et al. (2013, p. 1) concluded that "existing evidence does not support strong causal claims about the unique importance of pretend play for development", noting that many correlational findings automatically imply that the play has been the reason for the development. They suggested that many studies fail to replicate correlational findings and multiple variables can contribute to results. However, the arguments of Lillard et al. (2013) are widely contested in direct responses to the authors (Bergen, 2015; Nicolopoulou & Ilgaz, 2013; Weisberg, Hirsh-Pasek, & Golinkoff, 2013), further demonstrating the complexity and arguments associated with the perceived and actual benefits of play.

One recommended approach to combat the often "ignored or idealised" view of play is to use what Smith (2010, p. 213) described as a focus on the "middle way". Instead of an "either/or" approach, it may be better to focus on using the middle ground, because although the evidence does not suggest that play is "essential,… there is little doubt it is useful" (Smith, 2010, p. 216). Smith (2010) presents a solid and useful middle ground approach which is often not identifiable in research.

In general, the results on the specific impact of play on children's development are inconclusive (Smith et al., 2011), yet there is frequently universal acceptance of the value of play across education (Whitebread et al., 2009). Play is recognised as reflecting, reinforcing and resulting in development; however, the literature continues to present questions or critiques

on the value of play for all children. This study embraces the potential benefits for all children, yet acknowledges the limitations and often idealised view of play.

2.4 Categories of play

Extensive research has been conducted on what play is present and how it develops in children with typical development. The focus on children progressing through stages of development throughout history has seen multiple authors attempt to "predict regularities" and map the "increasing complexity of the human organisms" (Sutton-Smith, 1997, p. 36). This map of how play progresses is frequently used to encourage progression for children through the predicted stages (Sutton-Smith, 1997) and is needed to record developments across time (Lourenço, 2016). Sutton-Smith (1997) does, however, caution against automatically assuming progression, commenting that while it is possible, other factors may also contribute.

Piaget (1962) is frequently referenced in regard to the development of stages of play for children and his ideas are the foundation of many play studies (e.g., Linder, 2000; Rubin, 2001). He suggested that children move through various phases as they develop (sensorimotor, pre-operational, concrete operational and formal operational) and therefore children engage in play that is suitable to their developmental ability. Alongside the developmental stages, Piaget (1962) suggested three main types of play: practice play (approximately from birth to the age of two), symbolic play and games with rules. The practice play category, also referred to as "exercise play" (Piaget & Inhelder, 1969, p. 59), is identified as the only category within the sensorimotor stage of development and is most closely associated with functional play, since symbolic play is associated with the second pre-operational stage. The initial sensorimotor stage of development sees children move through six sub-stages (reflex activity, primary circular reactions, secondary circular reactions, coordination of secondary circular reactions, tertiary circular reactions, internal representations) that begin with an emphasis on innate

reflexes, then move to actions centred on their own bodies, and then to simple manipulation or repetition of actions (Bergen, 2015). In the latter categories, children begin to solve problems or conduct trial and error responses to further understand properties of objects. Children in the final category move from acting on or manipulating objects to beginning to include mental representations of the world around them; they are therefore moving from acting on objects to thinking, planning and remembering with the objects (Smith et al., 2011).

Piaget's stages have been criticised on a number of grounds. First, it has been suggested that they underestimate the physical and intellectual abilities of children at given stages of development; for example, the age of the development of object permanence. Baillargeon (2004) claimed that at 2.5 months children begin to realise objects will continue to exist once covered, whereas Piaget (1965) suggested object permanence occurs at 8-9 months. The difference can be attributed to diverse methodological approaches (Baillargeon, 2004); and Piaget commented that ages associated with specific stages are "only relative to the populations with which we have worked: they are thus essentially relative" (as cited in Lourenço & Machado, 1996, p. 147). Another criticism suggests that Piaget's stages are discrete and do not portray continual progression, but instead imply a state of being present and a state of being absent (Flavell & Wohlwill, 1969). However, Piaget claimed "fundamental continuity", arguing that knowledge does not have a specific beginning because it arises from previous knowledge (as cited in Lourenço & Machado, 1996, p. 148). Although the belief in continuity and changes throughout the categories is suggested by Piaget, it is not as visible in the categories themselves (Donaldson, 1978). Furthermore, some studies argue that Piaget's ideas are "no longer widely believed" (Goswami, 2015, p. 1). However, when the current frameworks for play are scrutinised, they show a reliance on Piaget's ideas. Overall, Piaget commented that his work was a rough outline and that further research would enhance those aspects not outlined in the work (Lourenço & Machado, 1996). Therefore, this study aims to

continue and build on previous work by further exploring the early stages of play for a specific group of children, and it views categories or stages of play as fluid with multiple points of overlap. The use of categories is necessary to support teachers in their classroom practices of baselining, measuring and supporting play. However, it is acknowledged that play or development does not progress through a completely linear progression (Farrell, 2012; Imray & Hinchcliffe, 2014).

2.5 Functional play

The present study focuses on the stage of play that emerges after the innate reflexes, as described by Piaget (1962) and often termed functional play. Functional play typically develops at approximately 9-24 months after children have begun exploring an object to discover its properties (exploratory play) and before actions such as pretending (Williams, 2003; Zelazo & Kearsley, 1977). Although the specific age and characteristics are reported differently across studies, typical descriptions of functional play involve actions such as building with bricks, rolling a car on a track, bouncing a ball or using a toy brush (Libby et al., 1998; Ungerer & Sigman, 1981; Williams et al., 2001).

Functional play is typically defined as using an object as its function denotes (Libby et al., 1998; Ungerer & Sigman, 1981; Williams et al., 2001). Throughout the literature, the terms functional play, constructive play, sensorimotor play and relational play are often used interchangeably. In a systematic review of the literature on play, Barton (2010) commented that the definitions regarding functional play are diverse, suggesting that at times functional play was considered under the heading of pretend play and at other times it was a separate category. This is possibly the result of an ongoing meta-representational debate (Jarrold, Mansergh, & Whiting, 2010; Leslie, 1987; Meini & Voltolini, 2010; Stich & Tarzia, 2015) regarding the thoughts the child holds during the play actions they complete. There are constant

debates regarding the idea that pretend play involves a type of meta-representation whereby the child must be able to hold two representations; for example, first that the "banana is a banana" and second that this "banana is a telephone". The second requires a "decoupling from reality and its reference, truth and existence relations are suspended" (Jarrold, Carruthers, Smith, & Boucher, 1994, p. 450). For example, when a child puts a toy cake pan in a miniature oven but the outcome does not result in a real cake (Barton, 2010), this would involve a type of meta-representation. However, Baron-Cohen (1987) has suggested that functional play does not actually involve pretend play because the child may regard a toy cooker as a small but real cooker. Barton (2010) challenged this debate on the precise definition, which can impact on the comparability of research. She claimed that research uses separate categories: a functional play category and a functional play with pretence category. She recommended differentiating between just using objects as their function denotes (putting beads on a string, or putting the lid on the teapot), and using functional play with pretence, which "involves nonliteral behaviors without the intended reality based outcomes" (Barton, 2010, p. 252). However, this recommendation is not widely applied in the literature.

Within this study there is recognition that some meta-representation may be necessary to engage in some higher characteristics of functional play. However, the focus is on the structure and content of the play; there is not, therefore, an intention to examine the thoughts or reasoning behind the actions. Overall, the contrasting definitions of specific aspects of functional play cause conflicting results in the research, because studies are observing different types of play (Sayeed & Guerin, 2000). To ensure clarity, comparability and the widest spectrum of play actions, this study adheres to the following definition of functional play: "using an object as its function denotes, even if it is a miniaturized version of this object, for example, pushing a toy car along the carpet making a 'brmmm' noise" (Libby et al., 1998, p. 487).

In the attempt to identify categories of play, there has historically been less emphasis on functional play and greater focus on symbolic play (Casby, 2003a; Williams, 2003). The depth and detail often presented at the symbolic play level is frequently more extensive than that at the lower levels of play. Even in the comprehensive review of play taxonomies conducted by Casby (2003a), it is indicated that few researchers focus solely on lower levels of play, whereas an extensive range of researchers concentrate on symbolic play. It is necessary to continue to understand how play develops before symbolic play (Lifter et al., 2011). Therefore, this study focuses on defining functional play for one particular group of children and filling the gap regarding the lack of detail within the content and structure of early play skills.

The first section of the literature review has suggested that play has developmental value, but that there are complexities in establishing the specific correlations. The diverse definitions of play are acknowledged and the specific definitions of this study have been identified for play, and more specifically for functional play. This study has identified value in stages or categories to support progression and development for children, but it also acknowledges that play progression is not linear. The next section will explore play for children with autism.

2.6 Autism

Since Leo Kanner's (1943) initial case studies depicting the characteristics of autism, there has been an ongoing attempt to define the boundaries of autism. This continues today with the current changes in the boundaries that define autism in the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5) (American Psychiatric Association [APA], 2013) (Baker, 2013). These current changes could be another attempt to further define the

characteristics of autism and make it discrete from other needs, similar to the way that Kanner (1943) attempted to differentiate autism from schizophrenia.

Defining the term autism can come from many perspectives and an individual's interpretation of the condition often depends on who the person is (e.g., medical professional, parent, teacher, or child) and their personal experiences. A child may define autism as a unique personal characteristic, whereas another child may view autism as a debilitating deficit (Macleod, Lewis, & Robertson, 2013; Stevenson, Cornell, & Hinchcliffe, 2016). Although personal definitions vary, a general consensus states that autism is a lifelong developmental condition that affects communication, socialisation and behavior and or interests (Wing, 2003). Murray (2012) succinctly states that autism is a neurodevelopmental condition that affects the way a person processes information.

More specifically, criteria are set out in the *International Statistical Classification of Diseases and Related Health Problems* (ICD-10) (World Health Organization, 1992) and DSM-5 (APA, 2013) which provide professionals with defining diagnostic characteristics of autism. The ICD-10 is more freely available worldwide and is advocated by the World Health Organization, whereas the DSM-5 is put forward by a single agency and more frequently used in America. The DSM-5 defines autism as "Persistent deficits in social communication and social interaction across multiple contexts" which present "Restricted, repetitive patterns of behaviour, interests, or activities". On the other hand, ICD-10 defines childhood autism as:

> A type of pervasive developmental disorder that is defined by: (a) the presence of abnormal or impaired development that is manifest before the age of three years, and (b) the characteristic type of abnormal functioning in all the three areas of psychopathology: reciprocal social interaction, communication, and restricted, stereotyped, repetitive behaviour.

Besides the core characteristics of autism, it is vital to clarify the spectrum of abilities associated with autism. This has been further clarified as the DSM-5 now requires a classification of severity level for each characteristic. This suggests that each child with a diagnosis of autism is unique and that the core characteristics can manifest themselves differently for each child. Some additional traits that can often be associated with autism include responses to sensory stimulation, diet limitations, self-harm, extreme behaviours, limited self-help skills, and anxiety (Al Shirian & Al Dera, 2015). Although not specific or unique to autism, they can still be frequently identified as characteristics associated with autism. Furthermore, autism can coexist with other disorders including, but not limited to, seizures, sleep disorders, psychiatric disorders and intellectual disabilities (Haney, 2013; Mannion & Leader, 2013). Since this study focuses on autism and SLD, it is therefore necessary to discuss comorbidity.

2.7 Comorbidity: Autism and severe learning difficulties

An SLD is defined in DSM-5 as a neurodevelopmental disorder and is classified as an intellectual disability. An intellectual disability (or Intellectual Developmental Disorder, as termed by ICD-10, or learning disability as labelled by the National Health Service) is a disorder with an onset during the developmental period; it can be defined as mild, moderate, or severe, and includes both intellectual and adaptive functioning deficits in the conceptual, social, and practical domains. However the "regional variations" and subjectivity in identification and definition of SLD must be acknowledged (Porter, 2005, p. 55). There is not a definitive definition of SLD and there are consistently competing definitions used to describe SLD throughout the literature (Farrell, 2012; Imray & Hinchcliffe, 2014; MacKay, 2009) that can lead to misunderstandings in research and debate across disciplines.

In England, the updated *Special educational needs and disability code of practice* (DfE, 2015, p. 97) describes SLD as a learning difficulty that is identifiable "when children and young people learn at a slower pace than their peers, even with appropriate differentiation" and suggests specifically that SLD is "where children are likely to need support in all areas of the curriculum and associated difficulties with mobility and communication". Children identified with SLD are usually working within the pre-national curriculum (Farrell, 2012); in addition to full support with the curriculum, they will also need assistance in areas such as self-help and independence skills (e.g., toileting, dressing, eating). Many pupils with SLD have limited language and might use signs or symbols to communicate (Frederickson & Cline, 2009). SLD can be viewed as an umbrella term and it is necessary to emphasise the importance of acknowledging that each child is unique (Jordan, 2013).

A child does not have an SLD simply because s/he has a diagnosis of autism (Jordan, 2013). Many pupils with autism do not have an SLD. It was Wing and Gould (1979) who were the first to report that autism and SLD could be present together, but confusion still exists within this area. Jordan (2013) explained how, with support and intervention, a child can learn to cope with some of the characteristics associated with autism. However, if the child also has an SLD then they might be limited in their ability to develop the skills necessary to cope with autism. As Jordan (2013, p. 3) commented: "in this way, it is the learning difficulty which causes the child to remain more autistic rather than the autism which is causing the learning difficulty".

In addition, there are complexities to consider when a child is being diagnosed, because one diagnosis could disguise the other and there are also differences in the categorisation of comorbidity classification schemes (de Vaan et al., 2016; Volkmar & McPartland, 2014). Therefore, when considering this dual diagnosis, it is necessary to consider the autism and the

SLD both separately and as a whole. Pupils with autism and SLD have different needs than do pupils with a diagnosis only of autism (Jordan, 2013; Matson & Shoemaker, 2009).

Empirical and anecdotal evidence suggests a rise in the number of all children with a diagnosis of a learning difficulty (Male, 2015), with estimates suggesting that up to 40% of individuals with autism are characterised in the severe to profound range of intellectual disability (Fombonne, 2003). Although discrepancies in prevalence rates exist (Isaksen, Diseth, Schjølberg, & Skjeldal, 2013; Matson et al., 2009), these increases, alongside the apparent increase (Isaksen et al., 2013) in the number of children identified with autism (1.1% of the population; Office for National Statistics, 2011), implies that it is imperative to continue research to support and understand this specific group of pupils, not least because of the limited research in this area.

Furthermore, the research field on teaching children with SLD is small and outdated compared to other fields of research (Imray & Hinchcliffe, 2014; Matson & Shoemaker, 2009; Porter, 2005). Many developments in the area of autism have focused on those without an intellectual disability (Hurley & Levitas, 2007); it is therefore vital to continue to develop the research specifically relating to SLD. Although small at present, research surrounding pupils with autism and intellectual disabilities has begun to provide "some useful information on nosology, prevalence, adaptive behaviour, challenging behaviours and comorbid psychopathology" (Matson & Shoemaker, 2009, p. 1111), providing a good starting point to expand upon.

2.8 Autism and play

Since Kanner's (1943) original findings, the general lack of imagination or limitation in play actions for children with autism has been well researched (Baron-Cohen, 1987; Barton & Wolery, 2012; Jarrold, 2003; Kasari, Chang & Patterson, 2013; Ungerer & Sigman, 1981;

Williams et al., 2001). Throughout the literature, there are frequently broad descriptions of play suggesting that children with autism have an inability to play imaginatively with toys, objects, and other children or adults, and that they have a tendency to display a limited range of imaginative activities that are often rigid or repetitive (Wing, 2003).

These limitations in play are further recognised as a characteristic of autism within the diagnostic process. DSM-5 identifies one of the specific criteria for diagnosing autism as a display of restricted, repetitive patterns of behaviour, interests or activities, and within the examples provided it specifically mentions limitations in play actions. In addition, ICD-10 explicitly makes reference to limited pretend play, restricted or repetitive behaviours, and precisely identifies "Preoccupations with part-objects of non-functional elements of play materials" as a potential characteristic. Although there is a clear recognition that the play presented by children with autism is limited, there is an ongoing attempt to clarify the extent of the deficit or the differences in the play behaviours presented by children with autism.

Historically, the literature has focused on symbolic or pretend play, although play deficits have been identified across all stages of play (Thiemann-Bourque et al., 2012). Results present clear conflicts in the presence of pretend play, time spent engaged in pretend play, or the number of pretend acts presented during play for pupils with autism (Jarrold, 2003). Many researchers claim a deficit in symbolic play (Baron-Cohen, 1987; Sigman & Ruskin, 1999; Ungerer & Sigman, 1981), while others establish some similarities in play to children with other developmental disabilities (Thiemann-Bourque et al., 2012) or similarities when matched by developmental age (Libby et al., 1998) or by chronological age (Dominguez et al., 2006).

While discrepancy in the extent of the difficulties is evident, there remains a strong emphasis on symbolic play in the research associated with autism. This is possibly because symbolic play provides a useful space to examine associated concepts (e.g., language development) (Williams, 2003). Additionally, a systematic review of the literature on play

interventions identified 24 out of 26 studies as showing a general focus on investigating symbolic play (Jung & Sainato, 2013). One study concerned play materials, and another appropriate play; however, none of the 26 identified articles focus specifically on improving functional play. However, in earlier systematic reviews of behavioural play interventions, four studies (all prior to 2002) have been identified that focus on behavioural interventions for functional play (Luckett et al., 2007). The focus on symbolic play has meant that there is less attention to play outside the classification of symbolic play, leaving gaps in the evidence regarding content and structures of play for children with autism (Dominguez et al., 2006; Libby et al., 1998; Thiemann-Bourque et al., 2012; Williams, 2003).

In order for children to engage in symbolic play, they need to first develop skills often associated with lower stages of play, such as imitation, exploration and attention; however, the literature has not focused on this area (Williams, 2003). This suggests that children with autism and SLD who require support in all areas of the curriculum are often not included in studies related to the ongoing discussion about play. Due to the limited attention on lower levels of play in the current research body of evidence, the literature review continues by examining the research that demonstrates an emphasis on functional play for children with autism.

2.8.1 Autism and functional play

Research results investigating the presence or ability to present functional play for children with autism is diverse. Some studies indicate that children with autism have some level of deficit in their functional play (Holmes & Willoughby, 2005; Ungerer & Sigman, 1981; Williams et al., 2001), while other studies emphasised no significant differences or more similarities than differences in functional play in comparison to matched ability or age counterparts (Baron-Cohen, 1987; Dominguez et al., 2006; Libby et al., 1998; Naber et al., 2008; Thiemann-Bourque et al., 2012).

The differences in results could stem from the variation in the definitions used, from methodological concerns or from a general tendency to focus on multiple stages of play (Dominguez et al., 2006). For example, different results emerged when a study focused only on functional play (Williams et al., 2001), in comparison to studies that looked at a range of play, such as symbolic, exploratory, and social play (Dominguez et al., 2006; Libby et al., 1998; Naber et al., 2008). Moreover, different results occur when the coding schemes used to measure the play are broken down into small increments to measure the functional play. For example, Libby et al. (1998) only has two subcategories related to functional play and does not find differences in functional play, whereas Ungerer & Sigman (1981), using four subcategories, and Williams et al. (2001) using five subcategories under functional play, both suggest some difference in functional play. However the results are not always consistent, since Thiemann-Bourque et al. (2012) used a wide range of categories that are directly linked to functional play but did not identify difference in functional play compared to control groups. Additional limitations of functional play studies are further examined in section 2.13 below.

Generally, studies on functional play for children with autism find inconclusive results. Often only one component of the study considers functional play, while very little of the current literature focuses solely on functional play (Williams et al., 2001). This is in contrast to frequent recommendations that further research on functional play is necessary (Dominguez et al., 2006; Libby et al., 1998; Thiemann-Bourque et al., 2012; Williams et al., 2001). Although diversity in results occur across the studies, there is a general understanding that children with autism present difference or difficulties in play (Baron-Cohen, 1987; Jarrold, 2003; Kasari et al., 2013); interventions to support play are, therefore, frequently identified throughout the literature.

2.8.2 Interventions

Research has predominantly suggested that children with ASD have some difficulty in play, and a substantial amount of research and money has been directed towards interventions for improving the play skills of children with autism. Two main reasons within the literature for the use of play interventions are developmental potential or diversionary potential (Luckett et al., 2007). This implies that the purpose of play interventions is development in other areas (e.g., language or communication) or as a means of replacing unwanted behaviours such as stimming (e.g., rocking, echolalia, staring).

The interventions range from one component of a larger intervention such as TEACCH (Mesibov & Shea, 2010) or a direct intervention to support an aspect of play, such as pivotal response training (PRT) (Koegel & Koegel, 2006). Rettig (1994) has suggested five broad methods of intervention: direct instruction; use of peers as teachers; manipulation of physical settings; the use of toys as playthings; and the involvement of adults. In addition, a synthesis of the literature on play interventions noted that visual modelling is the "most widely implemented" (Jung & Sainato, 2013, p. 85) as it includes the visual strengths of children with autism. However, Jung and Sainato (2013) identified a range of frequently implemented methods that include video and live modelling, systematic prompting strategies, pivotal response training, use of restricted interests, integrated playgroup models, script training and social stories.

Some research has concluded that it is possible to substantially improve play skills of children with autism, but other research has established that only small improvements have been demonstrated after teaching play skills to children with autism (Luckett et al., 2007). Luckett et al. (2007) raised questions regarding the ability of play interventions to support development and examined the claims made by researchers to improve the play of children with autism. In relation to functional play, the results in their publication describe four studies

that have demonstrated improvements. The studies used different behavioural intervention techniques, such as differential reinforcement, discrete trail training and self-management training to teach functional play, but all studies reported improvements in the child's functional play skills. However, there may be limitations associated with definitions used in various studies and the ability to generalise skills (Luckett et al., 2007). Overall, many of the interventions have demonstrated an improvement to some extent in play skills.

The next section of the literature review focuses more directly on the general assessment measures for autism and SLD and argues that there has been a limited focus in assessment measures in the area of play. It was originally envisaged that the focus of the study would be an evaluation of one intervention (CPRT) that has been claimed to enable children with autism to develop functional play. However, as discussed in the introduction, evidence from the initial pilot led to a change in the focus of the study. As explained later in the thesis, the reason for this change is that the intervention within the pilot study lacked a framework for assessing development. (See Rationale for change in research focus, section 4.7.)

2.9 General assessment measures for pupils with autism and SLD

An overview of the history of general assessments for children with autism and SLD demonstrates that there was traditionally a checklist approach that moved to more formalised measures. Assessment in the 1970s for children with SLD was mainly based around the use of checklists that were constructed according to developmental milestones for children with typical development (Fergusson & Byers, 2015). As the curriculum developed, there was a greater focus on "skills for life" (Byers & Lawson, 2015, p. 41), but many challenges remained and still do, in particular those associated with a dull curriculum, future outcomes for pupils with SLD and the value of shared experiences (Fergusson & Byers, 2015). It was with the introduction of the national curriculum in 1988 that schools and teachers of pupils with SLD

or profound and multiple learning difficulties (PMLD) were expected to implement the "curriculum for all" that included subject areas (National Curriculum, 1989). This also saw the development of the first special educational needs code of practice that emphasised shared learning experiences and a collaboration with parents to create a more common educational experience (Byers & Lawson, 2015). At this time there was not any specific required assessment criteria for those pupils below level one of the national curriculum, with the result that many children were identified as "working towards Level 1" (Fergusson & Byers, 2015, p. 246). However, in 1998 the Department for Education and Employment emphasised whole school target setting to support summative assessment, and this was also adapted to focus on pupils working at the pre-national curriculum levels. These were intended as summative assessment measures, not as formative day-to-day planning measures. In 2007, schools were asked to formalise and make a best-fit approach and to report measures related to the revised performance scales (P-scales) (DfE, 2014). (See Appendix 1 for example.)

The P-scales or P-level "supplement the national curriculum by specifying performance attainment targets (P-scales) and performance descriptors for pupils aged 5-16 with special educational needs (SEN) who cannot access the national curriculum. These apply to key stages 1, 2 and 3" (DfE, 2014, p. 3). The scales range from P1 to P8. The first three stages, P1-P3, are broken down into P1(i), P1(ii), P2(i), P2(ii), P3(i) and P3(ii) and are identical across all subject areas. The differentiation across subject areas begins at P4; therefore, those children with often the greatest need are measured against the same criteria for all subject areas. Although the P-levels provide a common language, there is no formal moderation process and relay on "best-fit judgement" (Rochford, 2016, p. 13). Furthermore, the focus is mostly on academic content and is based on the notion of a linear progression that is often inappropriate for children with SLD (Imray & Hinchcliffe, 2014). The DfE (2010) itself recognised that P-scales are not compatible for those working at the Early Years and Foundation Stage curriculum (EYFS), and

Imray & Hinchcliffe (2014) argued that many children with SLD are at a cognitive ability similar to children in the EYFS. This suggests that the P-scales that are required to be reported are in fact unsuitable for those children with SLD.

The P-scales do not include a section directly related to play, but instead play could be considered the "window" (Johnson et al., 2005, p. 127) in which to view the actions defined throughout the P-scales. For example, P3(ii) English states: "They may respond to options and choices with actions or gestures (for example, by nodding or shaking their heads)" (DfE, 2014, p. 12). In this statement, the actions presented during play might demonstrate the child's ability in this level, but the statement itself is not directly focused on the play ability of the child. In another example, science P4 states: "Pupils communicate their awareness of changes in light, sound or movement" (DfE, 2014, p. 35). This can be seen as an action that might be depicted during play and is one of the early stages of exploratory play, but again the focus here is on science rather than on play. An additional example at the higher end of the P-scales within P5 art and design states: "Pupils handle or use tools and materials purposefully" (DfE, 2014, p. 6). This example could clearly be related to functional play, but it is directed at the art and design ability. These examples illustrate how the emphasis is on subject areas and is not specifically directed at play skills. Therefore, the key assessment measures for children with autism and SLD do not focus directly on play, a vital component of development.

In a recent review of the assessment measures for children with SEND, the Rochford Review (2016) recommended that, due to challenges associated with the use of P-scales, it would be better to remove them and develop an alternative assessment. In the data collected from 1,729 survey responses from "parents and carers (16.0%), special needs schools (37.8%), mainstream schools (32.0%), local authorities (12.7%) and others (e.g. Ofsted, sector representative groups and teaching unions) (17.2%)" (p. 12), 78% stated that the P-scales were not fit for purpose in their current form. Concerns were raised regarding the compatibility of

the P-scales with the new national curriculum, consistency of application, the use of the scales as a curriculum instead of a summative measure and the limitations associated with assuming linear progression. Although the recent report highlights multiple concerns, there have been ongoing concerns about using P-scales to measure small increments of progress (Imray & Hinchcliffe, 2012; Martin, 2006) as schools rely on the use of supplementary materials such as Bsquared and Performance Indicators for Valued Assessment and Targeted Learning (PIVATS). (See Appendix 3 and 4 for a sample of PIVATS and Bsquared assessments.)

Bsquared and PIVATS are used in schools to break the national curriculum and P-scales down into smaller, more achievable measures. However, it is acknowledged that further precision could be established (Farrell, 2012; Imray & Hinchcliffe, 2012). Bsquared is a program that can be purchased by schools and costs anywhere in the range of £2,000 to more than £20,000 depending on the number of subject areas purchased, users and training needs (Bsquared, 2017). At a lower cost (£400 plus training cost), PIVATS (2017) breaks down each level into five smaller steps to help demonstrate progress across the core subject areas, whereas Bquared is separated by curriculum subjects and has extensive steps under each subject area that use a checklist approach. Both resources are applied with a best-fit approach. However, using a best-fit approach limits the precision of the measurements, and without precision on the scale the accuracy of the baseline or targets can be influenced. Bsquared and PIVATS are further criticised for being focused only on academic skills and on linear forms of progress, which have been argued as not suitable for children with SLD (Imray & Hinchcliffe, 2014; Rochford, 2016). It is necessary to ensure "smalls steps" in assessment (Farrell, 2012, p. 33). Some children might stay at a given level for years or may never progress to the national curriculum (Imray & Hinchcliffe, 2014); therefore, the resources used to assess and measure progress must present small increments. These are not the only measures available, but they are frequently used for children with SLD.

One recently developed assessment measure specifically designed for children with autism is the Autism Profile created by BSquared. The Autism Profile uses descriptors of "Communication, flexibility of thought, social interaction, emotional regulation and sensory and perceptual motor skills" (BSquared, 2017). However, it is notable that although play is a vital component of childhood (Johnson et al., 2005) and a deficit in children with autism (Baron-Cohen, 1987; Sigman & Ungerer, 1981; Williams et al., 2001), there is not a specific section in the Autism Profile devoted to play. As Hurle (2016) states: "many of our targets describe skills associated with play/leisure time, artistic/creative pursuits and imaginative explorations" (personal email correspondence with Alex Hurle, the Head of Education at Bsquared Ltd., 2016). This implies that one of the vital skills that provide opportunities to reflect, reinforce or result in development is not a focus of the new Autism Profile. It might be argued that embedding the play skills is sufficient, but considering the extended number of interventions and money spent to support play developments (Luckett et al., 2007) it appears that the Autism Profile is missing a key area of learning that many teachers focus upon.

Overall, there are ongoing concerns regarding the assessment measures for children with SLD and there is limited emphasis on play throughout these measures. The resources are also not always specific and suitable for children with SLD (Imray & Hinchcliffe, 2014). Therefore, the next section will examine the concept of measuring play before specifically examining measurements used to assess play. Limitations will be identified which will further demonstrate the need for a strong measurement scale to support play and development for children with autism and SLD.

2.10 Measurement of behaviour

There are diverse perspectives when considering how to measure or view a play behaviour. Leslie (2002) states that it is vital that a phenomenon (in this case, play) can be examined on

multiple levels. Play might be examined at the level of the context in which the action occurs, the observable behaviours, or the physiological disposition (Rubin et al., 1983). Psychological research on play tends to focus on examining the associated social or cognitive aspects of play, but does not tend to focus on the observable play actions alone. This can be demonstrated in Cheng & Johnson's (2010) systematic review of educational and development journals which identified only 19 of the 57 articles published over a three-year period as focusing on play; the other 38 articles used play as a context to examine associated concepts. This suggests that much of the previous research has focused on play as a medium to research other domains rather than the observable play behaviour itself.

The word "behaviour" is a diverse term that is used widely across disciplines with different meanings. Within the present study, when behaviour is discussed this is in reference to "the action and reactions of whole organisms" (Martin & Bateson, 2015 p. 7) that are observable without reference to any underlying (physiological, psychological, or neurological) mechanism. The internal states that may occur during play are not a focus. Play is viewed as an observable behaviour that can be objectively and scientifically studied. Watson (1994) is often credited with emphasising the importance of objectively studying observable behaviours: he suggested a move away from examining thoughts, feelings or experiences, with an emphasis instead placed on behaviours that can be observed. This provides a scientific study of behaviour that can be replicated by other researchers. Although the underlying or associated constructs are undoubtedly valuable, the content and structure of play is limited within play research (Williams, 2003). Greater understanding and scrutiny of the content and structure has the potential to address concerns related to the need for assessment tools to measure small increments of progress (Rochford, 2016; Imray, Hinchcliffe, 2014).

2.11 Play measurements using standardised testing for autism

Play abilities can be measured using a range of tools that have varied intentions. Some play assessments are used as a developmental assessment to diagnose a specific deficit, or to examine parent-child, family or peer interactions. However, as Pierucci et al. (2015, p. 36) have argued, "despite the importance of play in both the diagnosis and treatment of toddlers and preschool-aged children with ASD, there is little research on the effective measurement of play in this population".

Standardised assessments are commonly used in the process of diagnosing autism and supporting the development of interventions, but they also frequently include a component related to play. Pierucci et al. (2015, p. 36) were the first to examine the specific aspects of play within each of these measured assessments when they "explored the degree to which play skills from each of these measures agreed with or differed from the other measures (i.e., concurrent validity)." They compared "(a) Adaptive Behavior Assessment System–Second Edition (ABAS-II; Harrison & Oakland, 2003), (b) Autism Diagnostic Observation Schedule (ADOS; Lord, Rutter, DiLavore, & Risi, 2002), (c) Childhood Autism Rating Scale–Second Edition (CARS2-ST; Schopler, Van Bourgondien, Wellman, & Love, 2010), and (d) Communication and Symbolic Behavior Scales Developmental Profile–Infant/Toddler Checklist (CSBS DP-ITC; Wetherby & Prizant, 2002)". They found that not all measures assess the same aspects of play or solely focus on play ability, and that standardised measures report on information from different sources in different contexts. They recommend further research on the reliability and validity of measures and that a range of measures should be used to assess the abilities and plan appropriate interventions. It is suggested that standardised measures which include an aspect of play are measuring different components of play (Pierucci et al., 2015). This means that reporting on play abilities or creating a baseline which uses standardised measures will each be different depending on the assessment used.

2.12 Play measurements using commercially available assessments

Alongside standardised measures, there are an extensive number of commercially available play assessments available to classroom teachers and local education authorities to baseline and measure play. This section, therefore, discusses the strengths and limitations associated with these resources. This literature review focuses on those studies that identify a play level or ability directly related to play, instead of a resource that identifies a general cognitive ability (e.g., Symbolic Play Test (Lowe & Costello, 1988)). Commercially available play measures do not focus solely on functional play; therefore, the wide spectrum of play measurements is considered. Attention is paid to those measures that are frequently used in intervention research for children with autism. The five key themes identified regarding commercially available play assessments suggest that they:

- are developed based on observations from typically developing children;
- are holistic;
- include social interactions;
- use specific toys or play objects;
- are limited in reference to the users of the assessments.

2.12.1 Based on observation from typically developing children

Multiple play assessments focusing on play ability or play level appear to be developed based on the observations of typically developing children. Play, and specifically functional play for children with autism, is described as different in areas such as diversity, elaboration or time (Ungerer & Sigman, 1981; Williams et al., 2001). This suggests that if the frameworks are developed based on observations of typically developing children, then the specific play actions that are presented by children with autism might not be accounted for in the current

frameworks. For example, the Play Observation Scale (Rubin, 2001) is claimed to be based on the ideas of Piaget (1962), Parten (1932) and Smilansky (1968), each of whom conducted research with typically developing children. Additionally, Linder (2000), the author of the Transdisciplinary Play-Based Assessment, and Kelly-Vance & Ryalls (2005), key authors of the Play Assessment and Intervention Assessment, identify a wide range of developmental theorists on which the assessments are built on. The theorists cited are often associated with investigating the play of children with typical development, further evidence that commercially available play assessments often reflect the play actions of typically developing children and that they are not designed for children with specific needs.

However, not every commercially available resource was based on typically developing children. Assessments such as the Developmental Play Scale (Westby, 2000) acknowledged the use of both children with and without disabilities to develop the scales. This play measure recognises that children with learning disabilities often present play that has different qualities and quantities; therefore, they included a diverse group of children when creating the resource. However, there was not a sole focus on children with a learning disability or a direct mention or children with autism and SLD. Generally, commercially available play levels are created based on observations of typically developing children, but occasionally do include children with SEND within the development process.

2.12.2 Holistic approach

Some play assessments focus on specific aspects of play, whereas others present a more holistic approach to play. A holistic approach to play can provide a context for play alongside a broad understanding of the needs of the child; however, it could also be limited in depth and therefore lack the specificity needed to support pupils with SLD (Imray & Hinchcliffe, 2014). The Behaviour Observation Record (Segal, Jeanne, & Iverson, 2000) has a specific focus on the

social aspects of play and an emphasis on the value of social interactions in learning. Therefore, it provides a deeper understanding of social play instead of focusing on the range of play skills. Other tools, such as the Play Observation Scales (POS) (Coplan & Rubin, 1998), consider the area of play much more holistically. The POS are divided into three areas that observe social play, cognitive play (or observation of the structure of the play) and non-play behaviours. Each category is then further divided into smaller categories, creating a total of three subcategories in social play, five in cognitive play and six areas coded as non-play. This observation scale brings together the social aspects of play alongside the cognitive aspects to create a broader and more holistic understanding of the play that children present. A holistic approach can also be identified in the Transdisciplinary Play-Based Assessment, since it includes cognitive development (early object use, symbolic and representational play), social-emotional development, communication and language development, and sensorimotor development (Linder, 2000), and in the Play History Interview which examines four areas of play (sensorimotor; symbolic and simple constructive; dramatic complex constructive; and pregame, games and recreational) (Taylor & Menarchek-Fetkovish, Marilee, Day, 2000). Overall, within the commercially available play assessments there is greater focus on assessing a wide range of skills through a holistic approach; this provides a broad understanding of play rather than one that is detailed and specific.

2.12.3 Social interactions

The social components associated with delivering a play assessment can have an impact on the child and therefore impact the results. During play assessments, children are frequently required to engage with another person, yet research identifies limited social interactions during play for children with autism (Jarrold, 2003; Wing, 2003). Social interaction may hinder, change or remove natural play skills if the child is not comfortable with such interaction. This

could therefore not only impact on the results, but could also create challenging situations for children with autism.

It is useful to consider the delivery of the Transdisciplinary Play-Based Assessment (Linder, 2000) which involves multiple adults engaging in the process of observation. This assessment includes a play facilitator, a parent facilitator, a videographer, and potentially multiple observers. Although it is stated that the assessment can be completed by one person, it is implied that this could be difficult and that therefore a "team approach" is encouraged (Linder, 2000, p.146). With a large number of people involved, this raises the question as to whether the play being observed is truly representative of the play the child would naturally engage in without forced child and adult interaction.

This scenario (adult-child) can also been seen in the Play Observation Kit (POKIT) (Mogford-Bevan, 2000). In this resource, the child is not interacting with the researcher but with a parent or carer. Similarly, the Developmental Play Scales (Westby, 2000) encourage parents to engage the child in play actions. The use of a parent/carer might alleviate some of the social interactions with unfamiliar persons, but nevertheless still forces children, who may prefer to play independently, to interact with others during play.

2.12.4 Use of specific toys

Multiple play assessments encourage the use of a given set of play objects or use contrived play settings for the assessments. For example, POKIT uses a specific set of objects which include a stacking toy, posting box, wooden carousel, toy telephone, toy tea set, doll and cot, and picture books (Mogford-Bevan, 2000). A similar, prescriptive account with particular play objects is taken by Kaugars & Russ (2009) in the Affect in Play Scale-Preschool version assessment, although play objects are modified based on age. The Play Assessment Scale uses both natural and more prescribed scenarios (Kelly-Vance, Ryalls, 2008). However, the use of

specific toys when conducting play research with children with autism may not be appropriate, since children with autism often have preferred objects of interest (Dominguez et al., 2006) or need a strong motivation to engage with objects (Koegel & Koegel, 2006). Therefore, when play assessments require the use of specific objects or suggest certain types of toys, this could limit the play actions that are visible as the child might not have the motivation needed to engage or any interest in the provided objects.

One assessment that does fully consider the need for motivation and object interest is the Transdisciplinary Play-Based Assessment (Linder, 2000). This assessment encourages this through the use of pre-planning for the assessment with parents. The assessment activity recommends that parents bring in objects or toys that motivate their child specifically (Linder, 2000). This ensures a greater possibility that the child will have an interest or motivation to engage with the objects. However, depending on the toy used, potential actions viewed could be limited (Dominguez et al., 2006).

2.12.5 Limited reference to the users of the assessments

A final concern related to commercially available play assessment is that there is minimal reference made to the potential users of the assessment, except for the occasional statement that they should be familiar with deep concepts related to play (Taylor et al., 2000). If teachers are to use a play assessment, then they should be consulted or fully engaged in the development process to include diverse perspectives and usability of the resource (Pellicano, Dinsmore, & Charman, 2014a). Their views could influence the design and overall use. It is always possible that these steps have been completed, but they are not always reported; reports on reliability and validity measures, on the other hand, are more consistently reported. Additionally, it should also be noted that many play assessments are designed to be delivered by qualified psychologists or play therapists, with the result that specific training would be implemented.

Generally, the users, namely classroom teachers or schools, are not frequently identified as being central agents in the creation of the tools.

Overall, key limitations have been stated regarding the way the commercially available play resources have been developed and implemented. The development of the resources is based on observations from typically developing children and a holistic approach is often used. It is suggested that the impact of social interactions and toys used needs to be considered and that there is limited reference to those using and implementing the assessments. Each of these key areas has an impact on the process and results of the play assessments, which in turn impacts the ability of professionals to baseline, support and measure play development.

2.13 Functional play measures for children with autism

In addition to the commercially available play assessments, there are different play coding schemes or measurements that are used within the empirical research on play for children with autism. The next section focuses more specifically on the empirical research related to functional play for children with autism. Within the literature, there is mention of autism and SLD, but there is limited attention on functional play for this specific group of children. The focus remains, therefore, at the general level of autism and functional play and includes reference to SLD where possible.

The main limitations identified are the "global groupings" (Lifter, 2000, p. 230) and the limited specificity of play categories that constrain the ability to identify "subtle developments in play" (Thiemann-Bourque et al., 2012, p. 871). This will be emphasised in section 2.14 below by a critical review of two of the most detailed play frameworks (Lifter, 2008; Williams et al., 2001). Before further discussing the categories of Lifter (2008) and Williams et al. (2001), there are additional limitations identified in literature on functional play for children with autism. The three key limitations identified are:

- the ability of children in the studies is frequently over the developmental age of two;
- teachers' perspectives on play are rarely considered;
- similar recommendations for further research are identified yet unresolved.

2.13.1 The ability of children in the studies is frequently over the developmental age of two

There is limited research that focuses specifically on play for children with SLD (Corke, 2012). The majority of the studies (Baron-Cohen, 1987; Dominguez et al., 2006; Libby et al., 1998) on functional play for children with autism include research with primary children that have a mental age of over two years old; however, each study uses a different tool to measure mental ages. This suggests difficulties when comparing studies and, more specifically, one of the most vulnerable groups of children is rarely included as part of the sample groups within functional play research.

There is some difference in the age and ability of the children within empirical studies, but generally they are older and slightly over the prime age when functional play should be developing (9-24 months). This can be identified in early research from Libby et al. (1998), who studied children of the chronological age of ten and an expressive and receptive ability of approximately 2.4 years, and the research of Baron-Cohen (1987), which studied ten children with a mean chronological age of 8.1 years, a verbal mental age of 2.5 years and a non-verbal mental age of 4.9 years. More recently, Dominguez et al. (2006) conducted their research with 24 children diagnosed with autism with a chronological age of 5.5 years and a developmental age equivalent to 3.2 years.

It is possible to speculate about the reason for selecting children with a developmental age of over two years old relating to the extensive number of studies that examined a wide variety of play levels within one study. Researchers have apparently aimed to draw a sample of children that might be presenting some exploratory, functional and symbolic play. Another

speculation could be the increased complexity of conducting research on children with limited language and ability. This group of children needs support in all areas (Frederickson & Cline, 2009), so their ability to actively engage or participate might be considered limited in comparison with children functioning at a higher cognitive ability. However, some studies have included children with a lower developmental age or limited communication ability in their functional play research.

Thiemann-Bourque et al. (2012, p. 871) stated that all the children in their study expressed fewer than 20 words and had "severe communication impairments". The children with autism had a mean chronological age of approximately 4 years old and the expressive and receptive language ability of a 1.3 year-old. A similar sample group was used by Williams et al. (2001), whose study was conducted with children aged 4 years old but with a developmental age of 1.4 years old. This included younger children with a large degree of variation between actual age and cognitive ability. However, although both studies used children of similar abilities, their results were in conflict. If research is to fully understand functional play for children with autism, then it needs to examine functional play with a wider range of children. Research could examine the most vulnerable children who have the greatest differences in age and ability or those children frequently labelled with SLD.

2.13.2 Teachers' perspectives on play are rarely considered

The play settings used in research are diverse and range from classroom settings (Holmes & Willoughby, 2005) to more structured clinical settings (Ungerer & Sigman, 1981). However, teachers' perspectives and their knowledge of the play are frequently not a component of the research. Studies could add to the depth of understanding of functional play by examining other points of view (Cohen, Manion, & Morrison, 2011) on the play presented by children with autism. Additionally, teachers are the professionals required to identify baseline ability and set

and measure targets (Bremner & Cartwright, 2004; Male, 2000; Waite, Lawson, & Bromfield, 2009); therefore, as the users of play frameworks their viewpoints would appear to be necessary.

Many studies do not seek the views of other professionals, such as teachers or support staff, and base the classification of behaviours on their own observation of the children (Baron-Cohen, 1987; Naber et al., 2008; Thiemann-Bourque et al., 2012; Williams et al., 2001). However, Ungerer & Sigman's (1981) study is one of the few early studies on functional play for children with autism that included another practitioner (in this case, the child's primary nurse, since each child was resident at the hospital) in the collection of data regarding the child's play ability. In this study, the nursing staff were asked to use a checklist that was composed of 62 items and to identify how the child engaged with each checklist item. The results provided an alternative perspective to object play that was used alongside the structured play assessment. A more recent study by Holmes & Willoughby (2005) also used the knowledge of mothers, teachers and teaching assistants, each of whom completed a play questionnaire to contribute to the observed play actions. However, these viewpoints were not used to develop the play categories but were instead used to triangulate the data collected. If practitioners' views were pursued throughout the study and within the creation of the coding schemes, then additional or different results might appear. The use of multiple points of view on functional play for children with autism would not only contribute to a deeper understanding but may also demonstrate varied results.

2.13.3 Recommendations for further research are identified yet unresolved

Finally, there are consistent recommendations that are identified yet not addressed within the current literature; predominantly, these concern a need to further develop the current play frameworks or categories. The unresolved yet repeated recommendations emphasise a need for

the current study, as well as future studies, to be conducted around the content and structure of play. Early research by Libby et al. (1998, p. 494) recommended the need for further research to understand play for children with autism, but also clearly articulated the need for additional "subtyping of functional play" so that greater understanding of the differences in play can be examined and understood. More recently, Thiemann-Bourque et al. (2012, p. 871) suggested that "it will be necessary to examine current play taxonomies and find more consistent and sensitive methods to measure more subtle developments in play". They proceed by recognising the different classifications used by various researchers and the diverse labels given to categories. A similar view is echoed by Dominguez et al. (2006, p. 67), who claimed that further research is needed in a clinical setting to examine "more specific subcategories of functional and symbolic play". Finally, Williams et al. (2001) have articulated the limited knowledge that is currently available regarding early play skills for children with autism and recommended longitudinal studies and the use of comprehensive coding schemes that cover all levels of play. It is evident that the research recommends the need to scrutinise and specify the measures used to examine and understand functional play for children with autism and the limited focus on SLD demonstrates a gap that needs to be filled by focusing on this group of children.

2.14 Specific examples of functional play categories

To further emphasise the argument that additional specificity is needed in functional play frameworks, the literature review continues by critically examining two of the most detailed functional play frameworks associated with children with autism and SLD. It will be argued that although these two (Lifter, 2008; Williams et al., 2001) are the most detailed, they nevertheless present evidence of multiple limitations. The main concern is the gaps in specificity that suggest play frameworks or categories are not able to demonstrate smalls steps

in progress; this has repeatedly been identified as a limitation in general assessment measures (Imray & Hinchcliffe, 2014; Rochford, 2016) and functional play literature (Dominguez et al., 2006; Libby et al., 1998). If specific and measurable targets and baseline measures are to be obtained or used in interventions, then they must be specific (Lifter, Ellis, Cannon, & Anderson, 2005). Children with autism and SLD need resources that can measure and identify small steps in progress (Imray & Hinchcliffe, 2012, 2014; Rochford, 2016).

2.14.1 The Developmental Play Assessment

The Developmental Play Assessment (DPA) is a tool designed to be used in the planning of support for children with developmental delays, but not specifically autism, to identify their current abilities and future learning needs (Lifter, 2008). An underlying assumption of the DPA is the extensive value of play in development and the importance of knowing the child's current developmental play abilities when planning interventions (Lifter, 2000). Lifter (2000, p. 230) articulated the value of more general classifications, such as pretend play, but emphasised that "global groupings are too general for assessment and intervention". Therefore, the DPA categories are more specific than other frameworks (Baron-Cohen, 1987; Holmes & Willoughby, 2005; A. Leslie, 1987; Naber et al., 2008; Ungerer & Sigman, 1981), since they are composed of eight categories with specific definitions. Lifter (2008) provides extensive detail about the process of development of the categories, which included developing the categories from the observed play actions instead of categories developed *a priori*. This grounded-theory approach, alongside the belief in specificity in play categories, provides much more extensive detail than previous studies. However, it can be argued that further distinction between categories could be presented. Additionally, the development of the resource begins from typically developing children; therefore, it might not reflect the play actions of children with autism.

Level	Categories	Definitions
I	Indiscriminate Actions	All objects are treated alike
II	Discriminative Actions on Single Objects	Differentiates among objects, preserving their physical or conventional characteristics (e.g., rolls round objects, squeezes stuffed animals)
	Takes-apart Combinations†	Separates configurations of objects (e.g., takes all pieces out of puzzle)
III	Presentation Combinations	Recreates combinations of objects according to their presentation configuration (e.g., puts puzzle pieces into puzzle, nests the nesting cups)
	General Combinations	Creates combinations of objects that result in simple, nonspecific configurations such as container/contained relationships (e.g., puts beads and puzzle pieces in cup)
	Pretend Self	Relates objects to self, indicating a pretend quality to the action (e.g., brings empty cup to mouth to drink)
IV	Specific Physical (physical attributes)	Preserves unique physical characteristics of objects in configuration (e.g., stacks nesting cups, strings beads)
V	Child-as-Agent	Extends familiar actions to doll figures, with child as agent of the activity (e.g., extends cup to doll's mouth)
	Specific Conventional (conventional attributes)	Preserves the unique conventional characteristics of objects in the configuration (e.g., pours from pitcher into cup, "fixes" car with wrench
VI	Single-Scheme Sequences	Extends same familiar action to two or more figures (e.g., extends cup to doll, to stuffed bear, to interactant)
	Substitutions	Uses one object to stand for another (e.g., puts bowl on head for a hat)
VII	Doll-as-Agent	Moves doll figures as if they were capable of action (e.g., moves figure to load blocks into a truck)
	Multi-scheme Sequences	Extends different actions to same figure (e.g., feeds doll with spoon, wipes with cloth, puts it to bed)

Figure 1: Play categories used in the Developmental Play Assessment (Lifter, 2008, p. 311)

As can be seen in Figure 1, there are two subcategories identified as level II and level III that match the frequently used definition of functional play. These are then further divided

into additional subcategories. Thiemann-Bourque et al. (2012) identified the categories slightly differently as: level II, functional play object use; and level III, functional combinatorial. However, depending on the definition used, the subcategory identified as "Pretend Self" under level III might not be considered functional play, as the child could potentially use the cup to pretend or it could be seen as using the object as its function denotes, because it is a small yet real object. The starting point at which functional play and symbolic play are defined is constantly a concern when it comes to the labelling of a category, and this could be a potential reason why Lifter (2008) does not specifically identify which levels are functional play in the framework. However, the skills presented across the functional play categories involve differentiating, separating, recreating, combining and relating objects. The skills move from the simple to the more complex, with a skill such as separating objects being simpler than skills such as combining objects, since the latter require more knowledge about the components of the objects.

Scrutiny of the categories might imply that greater differentiation is possible. The authors even stated that "finer distinctions between and among levels await future research" (Lifter, 2000, p. 255). An example of possible further distinction can be identified if the categories "takes apart combinations" and "recreates combinations" are considered. These two categories suggest a child will take apart a play object, such as a puzzle, and then put it back together. However, a child might take many years to recreate a combination, or put the puzzle back together. Therefore, steps such as attempting or recreating part of the puzzle could be accounted for in the framework. Additionally, the starting point for functional play is implied at the "takes apart" subcategory; however, the child might only be acting on the object before starting to fully manipulate it. Therefore, some acknowledgment of this action or achievement could be presented.

This study also raises concerns regarding the starting point of the observation used to create the framework. The development of the categories is based on a longitudinal study of 14 children with typical development (Lifter & Bloom, 1989) and is then integrated into the literature on children with SEND. Therefore, the actions do not specifically reflect play actions typically associated with children with autism. Actions such as repetition are not present in the framework, yet they are frequently described as a characteristic of play for children with autism (Schertz, Odom, Baggett, & Sideris, 2016; Wolff et al., 2014). Therefore, a teacher using the resource to baseline a child's ability for an intervention might not be able to demonstrate specific actions and would be forced to use a best-fit approach without precision.

One final concern is related to the process of using the framework. The resource is designed so that professionals obtain a 30-minute recording of spontaneous play. The process of collecting the data is based on the frequency of actions related to the 13 categories. The child is then scored for each of the categories as "mastery, emergent and absence" (Lifter, 2000, p. 248). This process allows for professionals to closely identify the child's current ability, and also to identify the next steps in learning. However, the length of time required for observations might be difficult to obtain for children with SLD; therefore, alterations or adaptations would be needed.

Overall, Lifter has begun the process of creating more discrete and detailed categories of play. The categories are not specifically related to children with autism and the authors recognise the need for further specificity, but, in general, they provide much greater depth and detail than previous work. Lifter (2008) focuses on play across the range of play stages and the resource is designed for a wide range of developmental disability, whereas Williams et al's. (2001) study focused specifically on children with autism and in the discrete area of functional play (as discussed in the next section).

2.14.2 Williams, Reddy, Costall's (2001) functional play framework

Williams et al. (2001) created functional play categories to measure the functional play in children with autism. They stated that the categories "expanded on previous schemes (Baron-Cohen, 1987; Nicolich, 1977; Ungerer & Sigman, 1981) and were developed through inductive analysis of video recordings" (Williams et al., 2001, p. 70). Although they do not give full details regarding the design of the categories, their study still establishes much greater detail in the functional play categories presented. The study used the created framework to measure free play and suggested differences in "diversity, elaboration and integration" (Williams et al., 2001, p. 74) of functional play in comparison with control groups. Although the categories presented greater depth and a more specific focus on functional play, concerns are raised regarding gaps in development, the inclusion of a doll category and limitations in a holistic or balanced approach to play.

Behavior	Definition and examples
	Simple functional play
Functional association	The child combines two objects that are functionally related to each other (e.g., putting a cup on a saucer, placing a lid on a teapot, putting a peg in a hole).
Functional use of single object	The child acts on an object in a manner that reflects it's "proper" conventional use (e.g., bringing a baby bottle or toy cup to the mouth, brushing own hair with a toy brush, placing a toy telephone to the ear).
	Elaborated functional play
Functional use of multiple objects	The child uses two or more objects appropriately together accompanied by a clear supporting gesture (e.g., stirring a spoon in a pot, tipping a jug over a cup, as if pouring something into it. To be included in this category a child must stir the spoon around, rather than simply place it in the pot, thus distinguishing the behavior from simple functional association.
Functional act supported by appropriate vocalization/gesture	The child acts on an object in a manner that reflects its "proper" conventional use and accompanies this with an appropriate vocalization or exaggerated gesture (e.g., placing a toy telephone to the ear and vocalizing, making slurping noises while drinking from a baby bottle, drinking from a cup and throwing head back in an exaggerated drinking gesture). Acts involving the appropriate use of multiple objects which also include a relevant vocalization or exaggerated gesture were coded in this category.
Doll-directed functional acts	The child carries out an act involving the use of a doll (e.g., brushing a doll's hair with a toy brush, putting a doll in the bath). Acts involving a doll accompanied by a relevant vocalization were coded in this category.

Figure 2: Williams et al.'s (2001, p. 71) functional play coding scheme

Specificity and small steps in the categories are needed to plan play targets and interventions for children with complex learning needs (Lifter et al., 2005). Opportunities for further detail, or smaller steps, can be identified in Williams et al.'s (2001) categories. For example, if the simple functional play category with two identified stages is considered, one suggestion would be for some of Lifter's (2008) categories from the DPA to be added for even greater depth. Within the "Functional Association" level, there is specific reference to combining two objects in the first functional association category, but alongside this, or potentially before it, the category of "takes apart" from the DPA (Lifter, 2008) could be added.

This could then demonstrate children bringing together and taking apart objects in Williams et al.'s (2001) framework. It could also combat problems identified in Kuegel (2009) that indicated children did not automatically start by combining objects, as implied by Williams et al.'s (2001) first category. Within Kuegel's (2009) study, it appeared within play observations that a stage was missing before children began to combine objects. A further example would be the category labelled as "functional acts supported by appropriate vocalization/gesture" (Williams et al., 2001, p. 71). This category lumps all vocalisations together, implying that making a slurping noise while using a tea cup and a child stating, "I love drinking tea" would fall under the same category. However, with this large category there is limited ability to demonstrate progress if all vocalisations are categorised under one subheading. Previous literature has demonstrated a strong argument for the need to have small increments to demonstrate progress (Farrell, 2012; Imray & Hinchcliffe, 2012, 2014). Although Williams et al.'s (2001) categories, specifically in relation to functional play, do provide greater depth than early research (Ungerer & Sigman, 1981), there is potential to further break down the play behaviours. This would provide the greatest opportunity to accurately baseline the functional play ability and demonstrate progress for children with autism and SLD.

Another limitation to consider is that an entire category within the functional play framework is specifically related to doll-directed play. The use of a specific doll-directed category is also seen in Lifter (2008) but in relation to symbolic play. However, if the research on doll play for children with autism is scrutinised, it is apparent that an entire category about dolls is not necessary. It was originally Sigman & Ungerer (1981) who included a doll category under the category of functional play in their research for children with autism. However, they claimed that actions related directly towards dolls "occurred only infrequently" (Sigman & Ungerer, 1981, p. 328). This was also noted by Harrop, Green, & Hudry (2017) who focused on examining differences in play objects between girls and boys with autism. They revealed

that girls play more frequently than boys with dolls, but not at a level similar to typically developing children. If the ratio of girls to boys with autism is considered, then this again illuminates the minimal presence of doll play for children with autism. This is further examined in a study that specifically reviewed play object preferences and suggested that doll play was seen "significantly less frequently"; the study placed engagement with Thomas the Tank Engine and gross motor skills at the top of the list of object preferences identified (Dominguez et al., 2006, p. 65). In Williams et al.'s (2001) own study, there were zero doll-related direct play acts presented by the children with autism, yet the comparison group demonstrated this action to be the more frequent out of the elaborated play skills categories. It can be further noted that in Kuegel (2009) this category was ultimately removed, since it was not seen in any of the actions presented by the children in the study. The use of an entire category directed at doll play does not, therefore, appear to be suited to the study of play for children with autism.

Furthermore, the holistic approach discussed earlier in relation to commercially available assessments might also be furthered consider in relation to Williams et al.'s (2001) functional play categories. This is not to suggest that the categories are steered to focus on different stages of play, such as symbolic play, but rather that they might instead consider functional play within a wider framework. This might include the location of the play or the materials used, as seen in the Play History Interview (Taylor et al., 2000) or any social/emotional aspects that arise during the functional play, as seen in Transdisciplinary Play-Based Assessment (Linder, 2000). In Williams et al. (2001), the only area mentioned is vocalisation. It has been demonstrated previously that multiple play assessments use a holistic approach to examine play and therefore might provide a broad yet still specific understanding of functional play.

One final comment regarding Williams et al.'s (2001) categories is that they appear to be limited to the academic literature without being visible in the commercially available

resources, such as books about play that teachers might reference. This is in contrast to the DPA (Lifter, 2008), which is seen in multiple books about play for children. Furthermore, neither author makes reference to the other in their work, even though it is clear they are both trying to identify the content and structure of play to support learning for children with autism.

2.15 Conclusion

Overall, children with autism are identified as having restrictive and repetitive play, yet the extent of these characteristics is unclear from the scholarly debate (Kasari et al., 2013). Research on play for children with autism and SLD has been limited; instead, much of the research focuses on higher levels of play, such as symbolic play (Casby, 2003a; Williams, 2003). The research that does describe functional play for children with autism frequently focuses on examining the extent of the play deficit, and focuses less on the content and structure of the play (Williams, 2003). Those studies that present details regarding functional play are limited in depth with respect to the precision of the categories presented (Dominguez et al., 2006; Lifter et al., 2011; Thiemann-Bourque et al., 2012). Additionally, commercially available and standardised play measures present multiple limitations. It is necessary that the tools used to baseline and measure play provide a scale that demonstrates small steps in development if they are to be used specifically for children with autism and SLD (Imray & Hinchcliffe, 2014; Karin Lifter et al., 2011). The need for clearly defined play categories can be used to support teachers to baseline, measure and support play interventions, and also to more generally support the wellbeing and development of children with autism and SLD.

2.16 Research aims and objectives

Considering the value of playing, the restricted play presented by children with autism, the variation in findings, the lack of research on lower levels of play for children with autism and the limitation of play frameworks, this study aims:

To examine the functional play presented by children with autism and SLD in order to design a play framework that supports functional play development in the classroom.

The main objectives of the study are to:

1. Analyse and describe the functional play actions completed by children aged 3-11 and diagnosed with a combination of autism and SLD.
2. Create a framework for identifying and analysing functional play skills as exhibited by children with autism and SLD.
3. Collaborate with teachers to generate a functional play framework that enables them to support the development of functional play skills of children with autism and SLD in the classroom.

3. Chapter 3: Methodology Overview

3.1 Introduction

This chapter will provide a general overview of the theoretical perspective, a summary of the methodology, and an outline of the research design of the entire study. It theorises and describes the research approach, while leaving discussion of the specific details of the research methods, data collection procedures and analysis to the individual studies of the research (Studies 1, 2 and 3). The chapter begins by identifying the underlying theoretical viewpoint as pragmatism and then outlines the rationale for using mixed methods research (MMR). The overall design of the three studies will be described, and this chapter concludes by examining the overarching ethical considerations of the research project.

3.2 Theoretical perspective

The research examines a problem in the "real world" (Greene & Hall, 2010, p. 140) in a practical manner that would improve the lives of children with autism and SLD. It therefore adopts a position of pragmatism. Pragmatists focus on conducting research that "rejects the either/or choices associated with paradigm wars" and aim to use practical approaches to answer research questions (Teddlie & Tashakkori, 2009, p. 8). With an emphasis on valuing knowledge from objective and subjective standpoints, pragmatists move away from set principles and absolutes into a space that focuses on the problem that faces them (Cohen et al., 2011). Therefore, purist in qualitative and quantitative traditions are often not part of the pragmatist approach, since pragmatism acknowledges that valuable contributions can be made from diverse perspectives. The current study has engaged with diverse perspectives to create a strong resource to support children with autism and SLD and those who teach them.

The aim of the study was to examine the functional play presented by children with autism and SLD in order to design a play framework that supports functional play development in the classroom. The three main objectives of the study were:

1. Describe and analyse the functional play actions completed by children aged 3 to11 and diagnosed with a combination of autism and SLD.
2. Create a framework for identifying and analysing functional play skills as exhibited by children with autism and SLD.
3. Collaborate with teachers to generate a functional play framework that enables them to support the development of functional play skills of children with autism and SLD.

To address the research objectives, it was necessary to design a twofold study. First, the study needed to objectively observe young children's play behaviours devoid of any emphasis on underlying psychological constructs, so as to combat the limited research focused on content and structure of play (Williams, 2003) for children. However, it was also necessary to create an opportunity to collaborate with professionals to create a framework that reflects, includes and supports their practice. Therefore, the underlying viewpoints within the individual phases of research vary depending on the needs of the research. A focus on the needs of the research, rather than on the competing paradigms, led to the decision to take a "pluralistic" and "what works" approach (Creswell & Clark, 2011, p. 41). The intention was to retain rigour, but to set aside the dogma of specific paradigms (Florczak, 2014).

Throughout the study, a continuum rather than competing dichotomies underpins the approach, and the strengths and weaknesses of different approaches are recognised (Onwuegbuzie, 2012). The value of a continuum and flexibility can be demonstrated with regard to ontology and epistemology. The ontological viewpoint of this study is consistent with a pragmatist approach, in that there are potentially singular and multiple realities (Creswell & Clark, 2011). For example, Study 1, which examines the play actions presented by children,

demonstrates a need to ensure a stronger connection with critical realism by adopting a view that there is an external reality present, while at the same time accepting that this may be viewed imperfectly (Cohen et al., 2011). This is necessary to further understand the specific content and structure of play behaviours and to establish a strong functional play framework. At the other end of the continuum, in the final stages of Study 3, the data collected from the teacher interviews is viewed as more closely linked to constructivism and promotes the view that truth "can vary by person or group" (Teddlie & Tashakkori, 2009, p. 42). Therefore, the play framework was strengthened by accepting and seeking the constructed realities of individual teachers. There is clear value, therefore, in emphasising a continuum instead of opposing dichotomies.

Figure 3 demonstrates how the research is led by a pragmatic approach, which at times requires an approach leaning towards post-positivism, whereas at other times it leans towards constructivism. In general, since the study is aligned with pragmatism, it is focused on "what works" in order to address the research objectives, rather than on the competing dichotomies of paradigms and terminology.

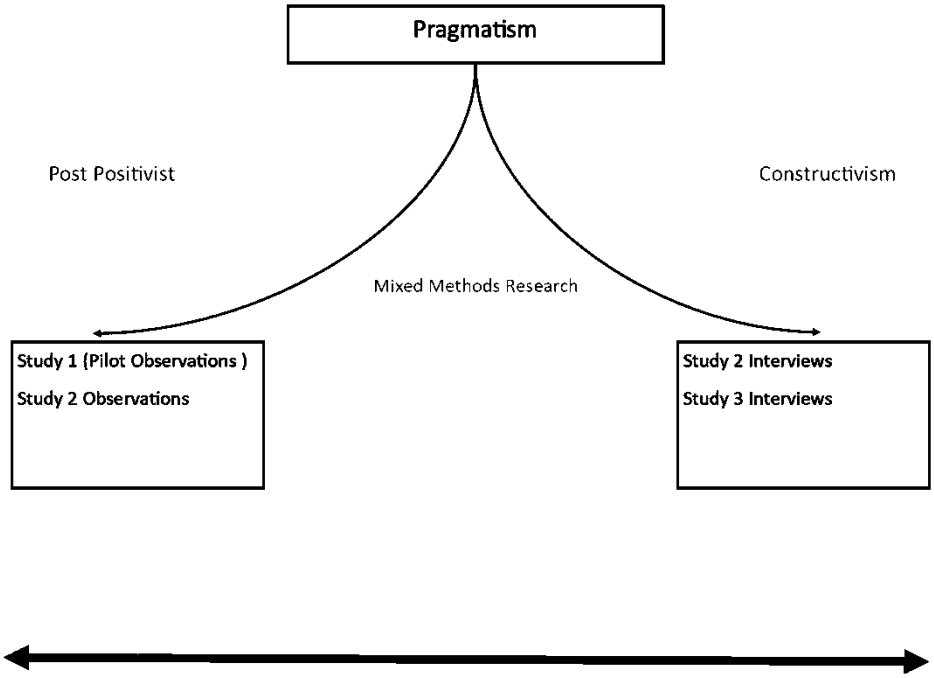

Figure 3: Overview of the theoretical perspective

Overall, there were specific aspects of the study that acquired knowledge from an objective standpoint, such as the play observations; at other points, such as the interviews, the researcher and the participants co-create knowledge. This does not imply a purist stance at either stage, instead, the individual studies lean more towards a viewpoint that recognised the value in multiple forms of knowledge creation. Therefore, this study asserts that there are times when knowledge is contextual, while there are other times when reality is measurable.

3.3 Methodology overview

The complexity and diversity of pupils with autism, and the complex learning environments involved in this research, presented challenges when considering a methodology. Therefore,

when considering the research methodology, the focus was on how best to answer the research questions within a clear pragmatist stance.

A mixed methodological approach was adopted throughout the study in order to bring together views and techniques from different paradigms that would provide opportunities for strong inferences and allow diverse viewpoints to emerge (Cohen et al., 2011; Paul, Fowler, & Cranston-Gingras, 2007). MMR focuses on the research questions rather than on competing paradigms; it allows for greater emphasis on what will work best to address the research aims. Therefore, MMR can address the complex needs of this particular study and, as Klingner & Boardman (2011) claim, could further address the current research gap in special education research.

This study views MMR as the "radical middle" (Onwuegbuzie, 2012, p. 194). The middle ground is viewed as a place where previously identified strengths and weaknesses of different paradigms and methods can diverge in order to create a stronger study (Teddlie & Tashakkori, 2009). As discussed by Onwuegbuzie (2012), the radical middle is not a vague space somewhere in between, but a true space where diverse research approaches come together to create a definitive third space. This new place enables the researcher to move away from a purist position in order to conduct a study with diverse approaches. The researcher in the radical middle must be fluent in both qualitative and quantitative methods (Bryman, 2012; Povee & Roberts, 2014).

Some authors appear to claim that MMR is often simply a combination of qualitative and quantitative methods (Lederman & Lederman, 2013; Leech, 2010; Pelto, 2015; Sandelowski, 2014). However, this research is more than just mixed methods, but is instead in line with the views of Lederman & Lederman (2013) in that it is focused on the paradigm that the research will be coming from. The mixing that occurs in this research is at the level of the

underlying assumptions behind each stage of the research. (See Figure 3: Overview of the theoretical perspective.)

3.4 Research design

The opportunist nature and combination of qualitative and quantitative methods and philosophical viewpoints in MMR presented complexity when examining the design process (Teddlie & Tashakkori, 2009). Therefore, when adopting MMR, flexibility and creativity must be present in the design process. Overall, the study was designed with a focus on answering the research questions through a range of perspectives and research methods. Each study depends on the previous study to clearly articulate the play skills presented by children with autism and SLD and then to create a tool that teachers can use to demonstrate small incremental progression. Figure 4 below depicts an overview of the research design and demonstrates an iterative approach to this design. As can be seen in the figure, each study builds on the prior study and contributes to the overall understanding of functional play for children with autism.

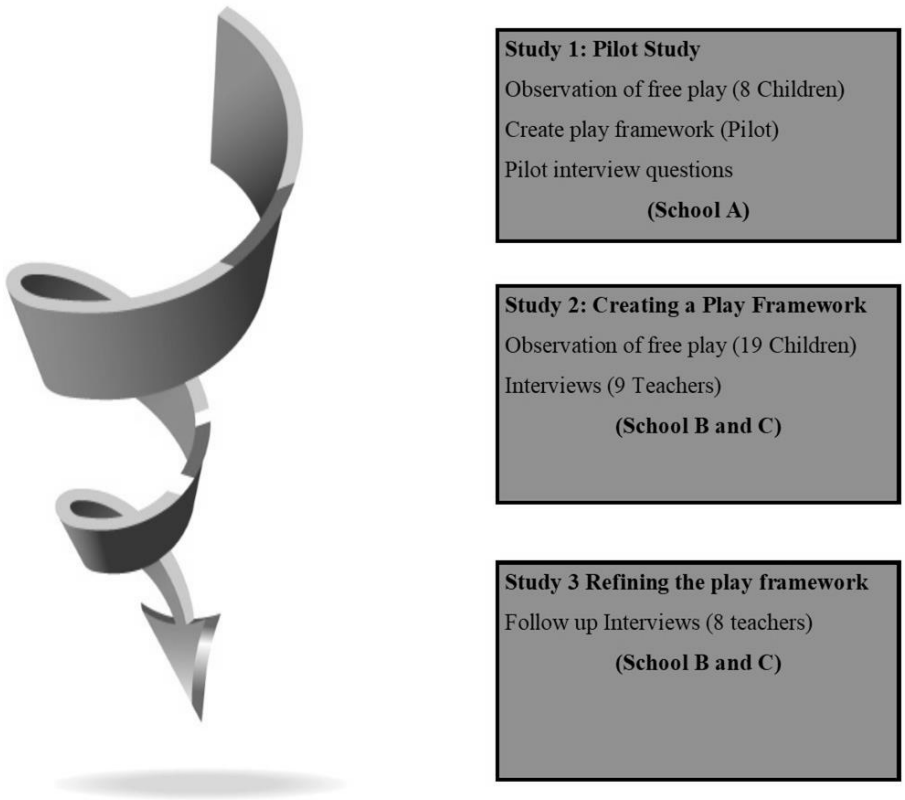

Figure 4: Overview of research design

Within MMR, multiple typologies have been created to aid the researcher in developing a strong study (Creswell & Clark, 2011). However, typologies might not always be able to address many of the complex research issues that can arise, and it can be difficult to simplify a complex research process into a classification method (Guest, 2012; Teddlie & Tashakkori, 2009).

Given this, this study considered the use of a typology-based approach and could be termed a convergent parallel design in Study 1 and an embedded approach in Study 2; alternatively, it might simply be termed a multi-phase design (Creswell & Clark, 2011). However, within this study a more dynamic and descriptive approach was taken which focused on the relationships and components of the MMR design rather than on selecting an appropriate

typology (Guest, 2012; Teddlie & Tashakkori, 2009). Although selecting the best methods to fit the study was plausible, this research decided against a "pick and mix" of typologies and instead described points of inference to identify clarity and purpose for mixing approaches (Guest, 2012).

3.4.1 Design: Timing and purpose of mixing approaches

Guest's (2012) idea of purpose and timing of integration was at the centre of the research design. Timing and purpose of integration are at the forefront of most typologies and shift the attention away from finding a name to fit the process, instead returning the focus on to the rationale for bringing together different paradigms and methods. Guest (2012, p. 146) illustrated how there should be a focus on the points of inference, describing this as "any point in a study where two or more data sets are mixed or connected in some way".

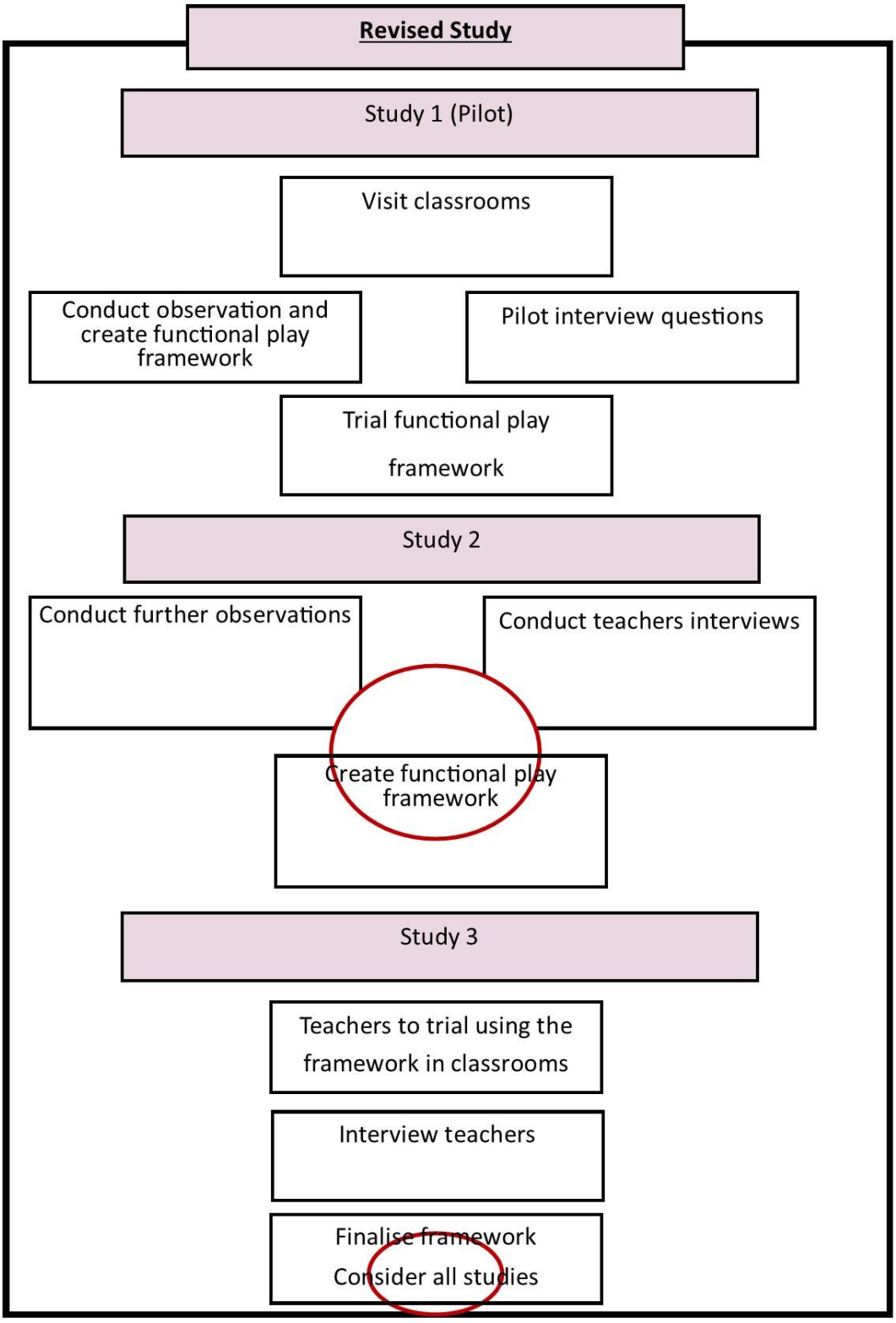

Figure 5: Points of inference across the study (points of inference are highlighted in red)

Figure 5 above provides an outline of the study design, including the key points of inference. In Study 2 it can be seen, with reference to Figure 5, that both data sets were collected simultaneously and then converged to provide results. The combined results were then brought together again with earlier results. The purpose of combining the objective behavioural video observation with the collaborative interviews enabled further validity and depth to the analysis of the video observations. It would not be possible to trial the developed framework without first conducting descriptive observation. Finally, in Study 3 the data was collected sequentially, since interviewing the teachers depended on the teachers trialling the framework; however, the data collected across the studies was then used to finalise the taxonomy. Each set of studies was collected sequentially and informed the next. The purpose of combining underlying assumptions associated with different paradigms provides the research with the opportunity to bring together the strengths of each paradigm and to meet the research objectives. A description of the points of inference is identified in each individual chapter.

3.4.2 Research procedure overview

As portrayed in Figure 4: Overview of research design, a series of three studies were conducted in order to investigate the functional play of children with autism and SLD. In Study 1 (School A), there was an original aim and a redesign of the study (the full rationale is set out in section 4.7). The original aim was to pilot the research tools, develop a functional play framework and implement an intervention (CPRT) to support functional play. The initial development of the play framework was based on video observation of a small group of eight children. The videos were analysed through an iterative process and the framework developed was trialled with 16 different children. This was then to be used in the quasi-experiment to assess the development of functional play before and after using the CPRT intervention. However, after initially training the teachers to use the CPRT intervention, it became clear through informal

observations and discussions that teachers and staff were not clear or confident on children's baseline play or progression points regarding functional play. It was evident that the framework needed to be developed further before attempting to implement a play intervention. Therefore, the intervention was removed and the focus returned to the development of a tool that could demonstrate small increments of progress and support teachers to develop the functional play skills of children with autism and SLD. CPRT is still viewed as an important intervention to support play; however, before an intervention can be implemented and measured, teachers need to have a strong method to measure progress.

After the removal of the intervention method, the focus returned to gathering further data to develop the play framework. In Study 2, video observations of 19 children in two separate schools (Schools B and C) were conducted in order to analyse the play actions presented by the children in free play situations. The observations involved two five-minute recordings of each child during free play, and a descriptive record of actions, movement and language were written at even 30-second intervals. The focus was on observing the behaviours and not on the intentions or interpretations of the meaning associated with the actions. The video observations were analysed through a grounded-theory analysis process and a play framework was created. In addition, interviews with nine classroom teachers were conducted to gather their views on functional play for children with autism, and their ideas were then embedded into the creation of the initial framework.

The final study focused on examining the usability of the play framework in the classroom and on finalising the framework. Study 3 involved eight teachers in two separate schools (Schools B and C) who were asked to trial the functional play framework and provide feedback to continue the development of the framework. Teachers were given a brief introductory session on the framework and examples of potential ways to engage and use the tool. Specific guidance on where and when to use the framework was not given in order to

obtain knowledge about how teachers actually used the tool in practice. A concluding interview was conducted with the teachers to investigate the practicality of using the framework and to ascertain potential development points. The final stage involved using the feedback to create the final framework.

3.5 Overview of ethical considerations

Ethical approval was granted for this study by the University of Bedfordshire ethical committee. The researcher had a full DBS check and has extensive experience in SEND provision, demonstrating competency and experience of working with special schools and children with autism and SLD.

The principles that underpin the British Educational Research Association (2011) (BERA) ethical guidelines were adopted throughout the study. The association states that all research should present "an ethic of respect for: The person, Knowledge, Democratic values, The quality of educational research and Academic freedom" (BERA, 2011, p. 4). Alongside the BERA ethical guidelines, the study consistently considered the Code of Ethics and Conduct of the British Psychological Society (2009) which includes guidance on ethical principles related to respect, competence, responsibility and integrity.

Particular attention was given to the guidance for conducting research with vulnerable children (Dobson, 2008). A critical component of any research is ensuring that participants provide their consent to participate and withdraw from the study. The Mental Capacity Act (2005) suggests that researchers should always aim to adapt and alter procedures to help all participants provide consent. Although written opt-in consent was given by parents/carers (Appendix 5), throughout this study there was an ongoing attempt before and during the observation also to obtain consent from the children involved in the study. Loyd (2013) has claimed that there are challenges when obtaining consent from children with autism and

advocates alteration of materials and processes to include “yes or no” responses to participation. Therefore, the child’s individual communication method was used throughout the process. For some children, this involved the use of Makaton or visual aids. Additionally, the person most familiar with the child (support assistant/teacher) was always present to support interpretations of consent from the child.

Within each study the researcher took steps to ensure that the children involved in the research were familiar and comfortable with the researcher before the study began. The initial procedure included a visit to each of the schools and each classroom. This involved spending a few hours in each classroom helping with daily routines and activities. The researcher was introduced to children through their preferred communication method and supported the learning that was directed by the teacher. For example, Child E has minimal verbal language therefore when working with the child the researcher used signs and single words to communicate. Care and attention was given to ensuring that the routines were not disrupted and that the approach to interacting with the children was responsive to their individuality. In summary, given the specific characteristics and needs of children with autism it was necessary to ensure the children were comfortable with the researcher in the classroom therefore steps were taken before the video observations began and across the studies.

Following the initial visit, every child observed across all the studies was given another brief introduction to the researcher. At this point, the child was shown the recording device and was invited and encouraged to explore the device. The child was then asked in their preferred communication method if the recording could commence. For some children, this was a “yes or no” process, whereas for other children it was a process of “happy and sad”. During the observation, attention was given towards the verbal and non-verbal cues that could indicate if the child wanted the observation to come to an end. There were a few occurrences of children further investigating the video camera during the observations and these

interactions were treated with great care so as to interpret if this was a behaviour that indicated a wish to withdraw from the observation. The researcher used this opportunity to re-ask the consent question and in all instances the recording continued and the child resumed engagement. Additionally, there were instances when the researcher was forced to remove undivided attention from the observation to support the health and safety of the child. An example taken from the daily observation field notes in Study 2 for an individual child is provided below.

> Child x was sitting on their chair interacting with a toy car. He/She then moved to lie down on the table and began to hang their head over the edge of the table. I quickly glanced around and noted that both teacher and the support staff were engaged in managing the behaviours of other children. I then quickly moved over and fully supported him to sit up and return to a sitting position. I used verbal prompting of "up" and then "sit". The child listened and returned to a safe sitting position on the chair. The video was out of focus for approximately 10 seconds. I had only a moment to ensure their safety and placed safety over complete observer observations.

Furthermore, there were times when a child would want to interact with the researcher and out of respect and care for the child the researcher engaged with brief contact. This is not viewed as a limitation to the observations but instead as a component of collecting data in classrooms. Furthermore, Loyd (2013) raises questions about the true understanding of participants regarding their knowledge and understanding of the research content. Children were informed through their chosen communication method that the researcher would watch them play so that the researcher could help them and their friends in class. This was at a level

of one word and short phrases/signs/symbols. A multimodal approach (Loyd, 2013) that used a range of signs, symbols, speech and text was used to further support their understanding.

Throughout the study, there were additional reflections and considerations related to the teachers and schools regarding care and respect. The teachers in the study were viewed as valuable contributors and necessary for the completion of the research. However, the time needed for their participation was constantly considered. As busy professionals, there was a continuous acceptance of changes to times and locations for interviews and meetings. Ensuring a positive research experience that would work alongside their professional obligations was seen as a responsible component of care and respect for them and their responsibilities. Teachers were fully informed verbally and through written consent forms about their right to withdraw from the research, as well as about data storage and the intentions of the research. (A selection of consent forms can be viewed in Appendices 6,7 and 10.)

3.6 Conclusion

Throughout this methodology overview chapter, the aim has been to establish some of the underlying beliefs and assumptions associated with this study. The research acknowledged a pragmatic approach to MMR and focused on answering the research questions devoid of some of the opposing dichotomies previously associated with paradigms. The level at which the mixing occurred was related to the underlying assumptions and purpose associated with each study and was not at a traditional level of qualitative and quantitative mixing. This chapter has also introduced the overall research design with consideration of the points of inference, and it has briefly described the three studies within the research. The next three chapters will explore the three main studies separately.

4. Chapter 4: Study 1

4.1 Introduction

Study 1 comprised the first part of the research study. This was originally intended to create a functional play framework, pilot the research methods (interviews) and pilot the training of teachers in a play intervention (CPRT). However, as mentioned, a number of concerns relating to the existing assessment tools and processes for evaluating children's baseline ability and progress in play arose during the collection and analysis of the pilot data. A decision was therefore taken to re-focus the research with the aim of creating a play framework that would be both reliable and valid in evaluating and supporting the functional play skills of children with autism and SLD.

Throughout this chapter, the original research focus and design are discussed and details regarding the redesign are presented. The chapter begins with an overview of the original aims and research design of the study. This is then followed by those details of the original study that became components of the redesigned research focus. This includes a discussion of the sample, methods, analysis and results. The conclusion to this chapter presents the rationale for the change based on the findings from the original pilot study. The original plans for the study will be presented, but this primarily discusses the pilot data collection processes that influenced the current, revised focus area and explains the rationale for change.

4.2 Original focus and design

The original research focus stemmed from a review of relevant literature related to autism, the development of functional play skills and the effectiveness of play interventions (Stahmer, Collings, & Palinkas, 2005; Stahmer et al., 2011), as well as the researcher's experiences as a classroom teacher in a special school setting. Given the importance of play and the potentially

positive impact of play interventions, the original aim of the research was to implement Classroom Pivotal Response Teaching (CPRT) in order to measure and support the development of functional play behaviours for children with autism and SLD. This was to be done through a quasi-experiment. The main objectives of the original study were to:

1. Analyse the functional play skills presented by children with autism and severe learning difficulties.
2. Evaluate the development of functional play skills after implementing Classroom Pivotal Response Teaching for children with autism.
3. Examine the generalisability of play behaviours across locations after implementing Classroom Pivotal Response Teaching.

The original research plan (Figure 6 below, left side) portrays a pilot study that was mostly completed, followed by a main study and a follow-up study, neither of which were subsequently completed. Multiple components from the original pilot study later became part of Study 1 for the current, revised study (Figure 6 below, right side). The initial classroom visits, piloting the interview questions, and creating and trialling the play framework are all components that were used as part of Study 1, which was, however, refined to exclude the CPRT intervention.

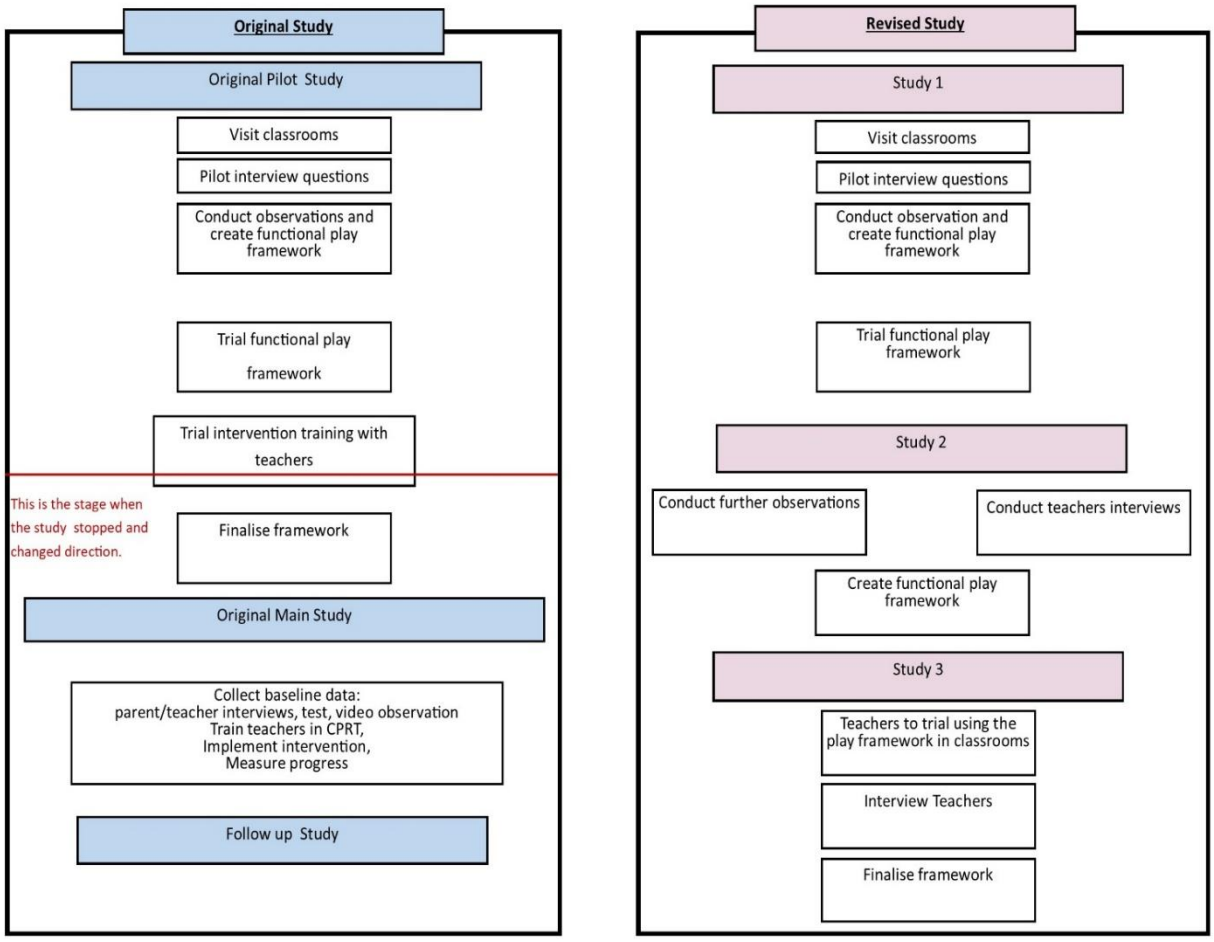

Figure 6: Design of the original study and revised study

The initial steps in the original pilot study were a process of becoming familiar with the setting and children, trialling research tools and creating a functional play framework that would be used in the main study to measure baseline data and progress. The final step of the original pilot study was to trial the intervention method with a small group of teachers in order to uncover any limitations in training the teachers to use this intervention; this was not, however, a process of collecting data and measuring progress with children, as this would have been completed in the original main study. These early original pilot stages would allow the methods and techniques used to develop and provide a strong main study (Doody & Doody,

2015). However, throughout the original pilot study concerns began to develop over the reliability and validity of the assessment tools and processes for evaluating the level of children's functional play skills, thus casting doubt on the viability of the intervention as a whole. These concerns developed over time until they reached a point when it became clear that continuing an intervention study that is not suitable to the staff and children would be unethical. A full rationale for the changes is discussed at the end of this chapter (Section 4.7).

The next section discusses the components of the original pilot study that are now part of the current, revised Study 1. This includes a discussion of the sample group, the process of piloting the interview questions, the observations that were analysed for the creation of a framework of functional play, the piloting of the functional play framework and the process of implementing the intervention with teachers.

4.3 Participants

4.3.1 School

Study 1 was conducted within one school (School A). This school provides education for children with severe and profound special educational needs. It caters for 140 children aged 2-19 across the main school and a local college. The majority of the pupils are from a white British background, and there are twice as many boys as girls. The number of children on pupil premium is slightly above the national average. The school has a history of receiving an "outstanding" rating as classed by Ofsted (Ofsted 2010 and 2014a) and in 2011 the school converted to an academy as a specialist school for communication and interaction. The school and head teacher are active participants in local research projects. The school was approached through an email to the head teacher and an initial interview was arranged to enquire about interest and the suitability of engagement with the project. Overall, the school was selected

based on convenience sampling (Cohen et al., 2011) and met the basic criteria of a local school with a range of pupils with autism and a school-wide interest in the area of play.

4.3.2 Teachers

Six classrooms were put forward by the head teacher based on the knowledge of the staff and pupils in each classroom, thus reflecting the principles of reputational case sampling (Teddlie & Tashakkori, 2009b). Three classrooms with three teachers (A, B and C) and six teaching assistants (TA) (TA1-6) would be involved in the pilot of the interviews and the training of CPRT intervention. The other three classrooms (D, E and F) would provide the location for the trial of the framework created within Study 1. Each teacher and TA provided written consent for involvement in the research project (Appendices 6 and 7). Each teacher had an informal meeting after school hours to discuss the entire project and the researcher had two one-hour visits as an introduction to the classrooms (A, B, C) and the children. At that time, the project would involve future play interventions in other schools and classrooms. Teachers and TAs in the research had a diverse range of experience in their positions. Teacher A was in their second year as a teacher; Teacher B was in their seventh year of teaching; Teachers C and F were newly qualified; Teacher E was in their sixth year of teaching; and Teacher D was in their 22nd year of teaching. The support staff in the three classrooms involved in the research consisted of six TAs with a range of experience, from one to twelve years in the position.

4.3.3 Children

Two groups of children were participants in separate parts of the original pilot study. The first group were selected from classrooms A, B, and C, and were involved in the play observations that were the foundation for developing a functional play framework; the second group were selected from three classes (D, E and F) for the trial of the framework.

4.3.3.1 Observation group

The children were selected for the observations based on purposive sampling (Cohen et al., 2011) and on given inclusion criteria from the classrooms that were provided and available. The inclusion criteria for children in the play observations were:

1. Attends a special school
2. A clinical diagnosis of autism identified on their statement
3. A statement of Special Educational Needs stating severe learning difficulties or global delay
4. Working in or around a P4 level (See Appendix 2)
5. Presents very limited or no symbolic or pretend play
6. Will hold an object and complete/attempt an action
7. Parents/carer will give written consent for the child to participate
8. Is in class A or B or C

Since the aim was to create a framework that reflected the functional play of children with autism and SLD, it was therefore necessary to include children who completed observable play actions during free play times, but who were not yet at the stage of demonstrating symbolic play consistently. Children who did not complete actions or were unable or unwilling to engage with an object were excluded from the sample, since those children would not be completing observable play actions during the play observation. The criteria aimed to ensure diversity among the ability of the children by seeking children working in or around the P4 level. This suggests that the child could be P4 in some areas of learning but could also demonstrate P3 or even P5 in some subject areas. While the goal was to include a diverse range of children within a framework of ability, it is recognised that the availability of children to participate from one school and three classrooms limited the available participants and therefore the results.

The criteria for the inclusion in the observation study was discussed with each classroom teacher individually. Each teacher received a copy of the criteria and also engaged in a discussion with the researcher to clarify the specific requirements of the sample group. Teachers were given one week to decide which children they would put forward for observation. Teachers advised on 11 children that met the criteria and sent home formal consent forms to the parents/carers of the individual children (Appendix 5). Consent forms were obtained from eight children; therefore, the study used all available consenting children from the three classrooms. The eight children were male and the average age was 6.7 (ranging from 3 to 11 years old). All children were diagnosed with autism and had SLD identified on their statement of special educational needs, and they were all identified as working in or around the P4 level (clarification of P4 is presented in Appendix 2).

4.3.3.2 Play framework trial participants

The aim of trialling the functional play framework with a separate group of children was to provide an opportunity to identify whether all play behaviours and actions were visible in the play resource. The children selected to participate in the trial of the play framework were selected based on convenience sampling (Cohen et al., 2011). The criteria for selection was only based on a diagnosis of autism and parental consent to participate. Minimal criteria were used to select the participants to examine the usability of the play resource with a diverse group of pupils within the framework of a school for children with SLD. A total of 16 children from three separate classrooms provided parental consent and therefore were involved in the trial of the framework.

4.4 Developing the teacher interviews

The aim of the interviews with Teachers A, B and C was originally to investigate teachers' views on the functional play actions that the children present in the classroom. In the revised study, the teacher interviews were used in a similar manner to elicit conversations and discussions about the functional play that children present. The key difference is that the interview in the revised study was not used as a baseline or progression measure, but instead was used to add additional perspectives regarding the teachers' view of functional play in their classrooms. The rationale for conducting the interviews, and the focus of the actual interview, will be discussed further in Study 2. The focus of this section is to outline the process of piloting the teacher interviews and the subsequent changes that were made.

The process of piloting the interview questions was completed to establish precision in the interview process and to develop the specific questions and ensure clarity for the participants. Teachers (A, B, C) completed the pilot interview to examine any difficulties in comprehension or order of information presented (Cohen et al, 2011). Each teacher was asked eight questions related to functional play for children with autism (Appendix 8) and their answers were noted.

The interview questions focused on asking the teachers to first describe in general terms the play that the individual child presents. The aim was to acquire an understanding of how they described the play actions of the child. This was followed by a more direct question that asked the teachers to identify the play objects the children used and the actions the children complete with those specific objects. A question was also asked regarding the use of multiple play objects, therefore ensuring breadth in the description of the objects and their uses. The interview then focused on seeking a further understanding of the teacher's description of how a child obtained the play objects and any behaviours the child completed during play that were outside of the immediate function of the object. This breadth was included to provide additional

opportunities to explain what behaviours specifically occurred during play with an object. A final question sought to identify any vocalisation presented during the play. Overall, the aim was to encourage teachers to describe in detail the play that individual children present in their classroom.

The teachers each identified a suitable time and location to conduct the interview, which was either before or after school hours. A brief informal discussion was held regarding their interest in play in order to relax and engage the teachers in conversation (Savin-Baden & Major, 2013). The questions were asked in a semi-structured format and were designed to encourage an open dialogue of opinions. At the end of the interview, the teachers were asked to identify any aspects of the interview that they believed to be unclear in order to inform the design of the interview questions used in Study 2.

The main concern identified by the three teachers suggested that they were unclear about what aspects of play to discuss during the interview. They made comments such as "I wasn't sure what you wanted me to say" (Teacher A) or "I got a bit worried that I did not answer your question" (Teacher C). Additionally, Teacher B stated that they always get a bit nervous about expectations during interviews and that they were not sure whether they stayed focused on functional play throughout the discussion. Although the teachers were concerned about what answers to provide, the interview did seek varied responses and was not focused on receiving a structured response (Cohen et al., 2011); therefore, it was decided to retain open-ended questions for the interview for the next study. However, the teachers' main concern also suggested that they were not confident in the topic or the interview process, which is common during interviews (Schostak, 2006). It was considered that the uncertainty might be removed with greater use of prompting and probes.

Breakwell (2012) suggest that researchers frequently complete the process of the piloting methods but are limited in their response and action to the problems that arise.

Therefore, Appendix 8 shows the prompts that were added as a result of the pilot interviews. The use of probes can allow for clarification, appreciation, justification, relevance, examples, extending the conversation and accuracy (Gillham, 2000). Importantly, additional prompts were used to ensure main points were addressed (Gillham, 2000). For the clarity of the participants, there were slight word changes and alterations to the order of questions; the focus was on the development of prompts and probes to limit anxiety and ensure clarity. Each question was extended with a range of prompts to ensure the interview remained focused and the depth of ideas was presented, as well as to reassure the participants. The initial pilot of the interview provided an opportunity to clarify the interview questions to be used subsequently in the research.

4.5 Creating the functional play taxonomy

In order to create a functional play framework, the original focus of the observation was to further develop the functional play categories presented in the literature (Libby et al., 1998; Marian Sigman & Ungerer, 1981; Thiemann-Bourque et al., 2012; Williams et al., 2001) through play observations. These would then be used by the researcher, in the original main study, to assess baseline levels and measure progress during the CPRT intervention. However, as portrayed in Figure 6, the study altered direction and the initial process of creating the play framework was used as a pilot procedure to a larger investigation on functional play actions (the revised study).

As noted in the discussion of the literature, play can be examined at the level of the context in which the action occurs, the observable behaviours or the physiological disposition (Rubin et al., 1983). Within the present study, play actions were viewed as observable and measurable and there was no emphasis on the underlying psychological constructs (Yoder & Symons, 2010). Therefore, this research investigated the visible play actions and did not

investigate what the play actions meant or what the child was thinking or feeling during the play actions. This study sought to conduct observations as a complete observer and was interested in the observable facts (Cohen et al., 2011). The observations were focused on the object, actions, non-actions and language used, but they were not exhaustive, with a "collecting everything" approach being adopted (Savin-Baden & Major, 2013, p. 393). The observations were not conducted using predefined categories, since the goal of the observations was to develop categories based on the functional play actions as viewed, rather than on measuring or counting frequencies of behaviours (Bryman, 2012).

The observations involved eight children as described in section 4.3.3 above. Each child was recorded using a Flip Ultra HG camera during their free play. Due to recommendations from the teaching staff involved in the study, the Flip camera was selected to be used. Staff suggested that multiple children had an attachment to or preference for using technology, and that a smaller camera would therefore be the least intrusive on the natural play environment. This small (four inches by two inches) handheld camera was available and was selected to be the least disruptive so as to minimise the presence of the researcher (Denscombe, 2011).

4.5.1 Context of observations

Naturalistic video observations of play actions occurred twice across a two-day observation at the school. The value of observing children in their natural environments as opposed to a clinical environment is that it presents an opportunity to observe naturally occurring actions in a familiar environment (Denscombe, 2011). This method enables patterns and trends to be established (Cohen et al., 2011) and is used frequently to observe play behaviours of children with autism (Holmes & Willoughby, 2005; Williams et al., 2001). This completely naturalistic approach is unlike research that claims a naturalistic or unstructured play environment, but which, by using specific objects or contrived play settings, actually implements procedures

more closely linked to semi-structured observation (Dominguez et al., 2006; Libby et al., 1998; Thiemann-Bourque et al., 2012). The aim was to view the play of children with autism in their most familiar and natural environment without specifying the play objects or locations.

Each child rotated through one-to-one teaching sessions and then was provided with "choice" or "free" time. This was a period of time when the child was prompted (verbally and/or physically) by the teacher/TA to select an activity to complete. The class schedule was designed to complete this rotation twice in the morning and once in the afternoon; therefore, the observations were conducted at one of the morning sessions and at one of the afternoon sessions. The video observations were completed during the first five minutes of each child's "choice" time across two days, creating a total of 10 minutes of observations for each of the eight children. While previous research ranges from using short sets of brief clips (Thiemann-Bourque et al., 2012) to full 15-minute videos (Williams et al., 2001), five minutes was deemed appropriate. Through informal discussions with classroom teachers and consideration of previous research (Kuegel, 2009), this was the time span when the pupils were engaged in activity with minimal inactive periods.

In addition to the video observations, brief field notes were completed immediately after observing each individual child. A record of the location of the play, the objects used and the child's overall demeanour would allow for greater understanding of the context of play during analysis (Cohen et al., 2011; Moyles, 2005). The field notes also provided an opportunity to ensure ethical consent from the child throughout the observation process.

4.5.2 Data analysis and results of play observations

The first step in analysing the play observations involved the review of each video using Behavioral Observation Research Interactive Software (BORIS) to transcribe the actions presented. BORIS is a free software that allows frame-by-frame viewing at multiple playback

speeds. At even 30-second intervals, detailed descriptions were made of the objects used, actions with and without the object, and the verbal and non-verbal language used (Appendix 9 examples). The focus was on describing the actions the child presented without any underlying assumptions about the reason or thoughts associated with the play. After descriptions of the actions were recorded for each child, the inter-observer reliability was established at 87% (58/67 x 100 = 87%). This was conducted with a SEN classroom teacher who had 22 years' experience (Coder 1) of working with children with autism and who was regarded as very experienced in observation. Two five-minute observations from two separate children were conducted by Coder 1, and these were compared to the researcher's descriptions and measured based on each event identified. Similar language and detail was presented in the results and further discussion conducted on instances of slight differences.

Once the actions were transcribed and inter-observer reliability established, initial coding of the data from the observations began with the intention of using the identified categories to create a visual representation of the play actions. The first steps included identifying the instances of functional play, as defined by Libby et al. (1997), with a single object and then with multiple objects. Next, initial open-coding (Cohen et al., 2011) was defined based on the actions presented. In the earliest coding, an average of 70 codes were established per child. An example of two minutes of description and code for Child B can be seen in Table 2 below.

Table 2: Coding example for Child B

Child B: large Lego blocks, floor, back of classroom		
Time:	**Actions completed**	**First initial code**
30	Blocks are placed in front of him (kneeling on the floor) Pause; glances at box Uses right hand to move around bricks in box, circular motion, looking into the distance, left hand by side Removes hand	Given object Waiting, eye contact Exploring, multiple objects, touching Eye contact finishing
1	Large over-exaggerated body movement to lean in the box and places hands on the edge of box Slides both hands quickly down the inside with both hands then in the box Selects one blue block with right hand and removes both hands; Places one block on the floor upside down and bangs (quickly) with bottom of hand in fist shape (13 sec) Returns to searching and moving around with one hand in box Puts other hand in the box and moving blocks around slowly Selects one block with right hand; full finger grip, pauses with eye contact on the block and drops back in the box Selects one yellow block in right hand- full hand grip	Large motor movement, Touching Feeling object, Selecting one Attempting action single object Exploring, touching Multiple object engagement Selecting, changing, pausing, Eye contact, finishing Selecting single object
1.30	Removes hand and block quickly from box Leans back (still knelling), pauses looking up towards to the ceiling Places yellow block on top of the original blue block selected. The block is not completely clipped to the original block. Pauses looking towards blocks, both hands by his side Moves right hand and bangs the block with whole hand- it clips in correctly Makes a high-pitched sound Uses both hands to hold tower of 2 Moves tower to face with both hands in full grip and inspects tower very close to face	Selecting, choice Large motor movement, eye contact, pausing Attempting to combine two objects, incorrect, multiple objects, Stopping action, looking Functional play- Libby et al. Vocalisation Holding objects Variation, looking closely
2	Puts down on the ground with both hands, lets go, returns hands to lap and looks around the room	Returning object, ending action, eye contact

The first initial codes were then scrutinised and further categories developed; these included terms such as contact, waiting, redirected, exploratory, single object, multiple object, non-play object, intentional, attempting, prompting, selecting, distraction, and new action. The codes were provided at an event-by-event level (Denscombe, 2011). Each child had an average of 17 codes at the end of the process of initial coding. Table 3 presents a final list of individual code words for Child C.

Table 3: Final list of initial individual code words for Child C

Final list of initial individual code words for Child C	
Initial contact	Exploring non-play object
Starting to attempt	Intentionally exploring object
Attempting to use one object incorrect	Incorrect use of single object
Exploring one object	Attempting to combine more than one object
Continues to explore single object	Incorrectly explores object
Attempting to combine two objects	Selects random object
Distracted movement away	Exploring object
Random eye contact	Repeats play action with one object
Redirected	Direct eye contact
Given object	Single object FP
Multiple objects FP	

The individual coding results for each child were then categorised together in an iterative process of coding the same data and checking for similarities and omissions to reaffirm the researcher's findings. Critical incidents and events (Cohen et al., 2011) without a clear coding category were placed into an "other" category to ensure that even if an event did not happen frequently or was different from the other codes, it was still present within the data. By ensuring a range of coding opportunities, this research attempted to avoid criticisms similar to those presented by Sharpe (1999), who has argued that studies, such as the Uzgiris-Hunt Scales

(1975), move too quickly from the behaviours observed to closed categories. After multiple coding opportunities, the 15 final codes from all children were manoeuvred into visual representations. Alongside the 15 key categories, specific examples from the observations were included to further emphasise the meaning of the category. The categories were placed in an order that portrayed simple to more complex actions, but not as a means to suggest a linear progression. The framework created in Study 1 is identified in Figure 7 below; it encompasses the coded play behaviours and specific examples identified in the observation. Limitations of the framework are acknowledged further in the next section.

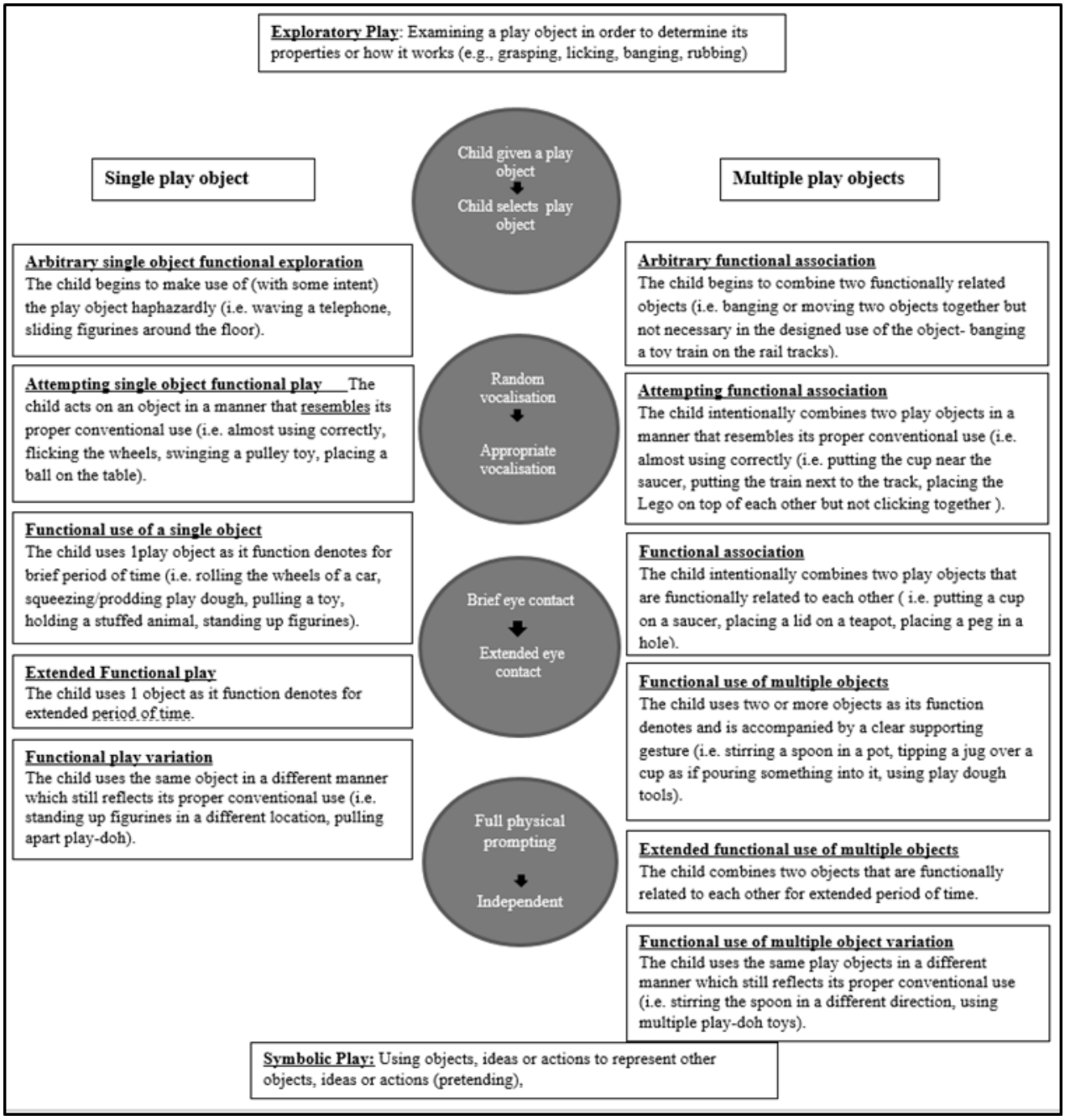

Figure 7: Study 1 functional play framework for children with autism and SLD

4.5.3 Trial of Study 1 functional play framework

Once the play framework was created, it was trialled by the researchers in the three different classrooms in School 1 to ensure a diverse, full range of play behaviours were present. The aim of trialling the framework was to verify that the play actions present in the classroom were visible on the framework. In the original study, the framework would be used by the researcher

to measure progress, but in the revised study it was a pilot for future development of the framework. As stated previously, 16 children in total were involved in the observation to trial the framework. The procedure included the researcher observing each child for one minute, on three occasions over the day. The behaviours presented over one minute were identified on the play framework and recorded. This short glimpse of witnessed behaviour was not to assess the level or ability of the children but to identify if the actions completed by the child were visible on the newly created functional play framework.

The results indicated that frequently the actions were visible, but some limitations were also recorded. Of the 48 available observations, 36 actions were clearly present on the framework. The limitations identified from the remaining 12 incidents were related to the limited ability to demonstrate the repetitive nature of the play or the amount of time spent inactive, the presence of using objects incorrectly, the brief involvement of prompting from staff, the diversity of play objects, and the fluidity of change that occurred in the actions presented. Although the 12 actions could be placed within a "best-fit" approach, it was recognised that the framework had limitations.

Furthermore, the amount of written content on the framework meant that even though the researcher was very familiar with the material, it was often time-consuming to complete the observation within the classroom setting. There were also general concerns from the researcher about the exclusivity of some of the categories, as well as the use of Libby et al.'s (1998) categories as the initial starting point for coding. Overall, limitations were identified; however, at this stage in the implementation of the research, these concerns were not enough to change the focus, since this framework (Figure 7 above) had much greater depth than those identified within the literature (Libby et al., 1998; Sigman & Ungerer, 1981). It was not until further concerns had been identified in the training of the teachers in CPRT, that the range of

concerns led the researcher to change the focus of the study. There was no further development of the framework within Study 1, but it was viewed as a pilot to the revised study.

4.6 Training the teachers to use CPRT

The purpose of completing a pilot of the CPRT intervention was to review the process for training the staff and to identify any concerns in training before the originally planned main study. Three teachers (Teachers A, B and C) and six teaching assistants (TA1-TA6) were involved in the training for the CPRT intervention. CPRT can be implemented without specific qualifications, but the current research study followed guidance from Suhrheinrich, Stahmer, & Schreibman (2007) who have analysed the process of training teachers in CPRT. Multiple studies articulate the importance of training accurately for teachers, indicating that the staff members who receive some training feedback on the implementation of intervention (PRT/CPRT) had a greater likelihood of implementing the intervention more accurately than those who received less feedback in training (Suhrheinrich, 2015; Suhrheinrich et al., 2013; Verschuur, Huskens, Verhoeven, & Didden, 2016). Therefore, the process of training teachers included group instruction and access to the training manual, alongside one-to-one feedback and support (Suhrheinrich, Stahmer, & Schreibman, 2007).

The teachers and support staff attended two after-school training sessions that introduced, demonstrated and supported them to understand the techniques involved in CPRT. The first session reviewed the characteristics of autism and introduced the literature on the importance of play. Teachers were also introduced to the functional play framework (Figure 7) and a brief review of applied behaviour analysis was also presented. Teachers and support staff were provided with additional literature, videos and books on play for children with autism. In the second training session, teachers were introduced to the characteristics of PRT and CPRT and the underlying components of applied behaviour analysis were again reviewed. Within

these sessions, multiple examples were provided and staff were given an opportunity to verbally share examples based on their own experiences. After the two sessions, the teachers and support staff were supported in class to implement the CPRT method over three days. During this time, the researcher demonstrated the CPRT approach with the children and also provided informal feedback to teachers and staff as they implemented CPRT. This was a collaborative process of working with the staff to learn how to implement CPRT; it was not a process of measuring how well they were implementing the intervention. Throughout the process, field notes (Table 4 provides an example) were consistently written and supported the feedback to staff; in the original aims of the research, these notes would also have supported the future implementation of the quasi-experiment.

After the intense support over three days, a follow-up session was provided weekly for three weeks until the decision was made to alter the study. Concerns identified throughout the trial of the intervention suggested that potentially teachers did not have a clear baseline or play target, and consequently they provided play actions that were not always suitable to the child. Additional concerns from the informal discussions, pilot interviews and play framework also contributed to the redesign of the study, and a full rationale of the concerns identified throughout the original pilot study is outlined in the next section.

For clarity, the setting involved was informed of the reason for changing focus and was offered an opportunity to receive training in CPRT for all staff. This was in order to ensure a positive relationship and to provide support to the setting. The staff and families involved in the study were notified, and discussions were held to ensure they had clarity regarding the reasons for changing the research and an explanation of the future research. The results from the final study will be made available to the school, parents and teachers involved in the initial study.

4.7 Rationale for change in research focus

The original study was composed of methods that would support the development of the data collection and analysis of the main study. The aim of the pilot was to examine "the effectiveness" of the "data collection method and analysis techniques and avoid future complications" (Doody & Doody, 2015, p. 1074). The intention was to prepare for a quasi-experiment to investigate the impact of using CPRT to support functional play for children with autism and SLD. However, throughout the collection and analysis of the pilot data, concerns arose regarding the feasibility of evaluating the effectiveness of the play intervention. It was through a combination of concerns that the study was redesigned. The four main concerns identified were:

1. Targets for play were not present
2. Teachers did not have a baseline measure for play ability
3. Teachers did not have a tool to measure small increments of progress
4. The play framework had limitations

4.7.1 Targets for play were not present

The earliest concerns arose during the initial visits to each of the three classrooms and during the pilot of the interview questions. The process of becoming familiar with the students and teachers, and conducting the pilot interviews was necessary for the research; however, it also gave a glimpse into the teachers' current practices and allowed for open dialogue. This dialogue is viewed as a valuable asset to the research process. It was during these conversations and classroom interactions that the first concerns regarding the variations and lack of play targets occurred.

Teachers are expected to set targets for lessons, individual children or groups of children (Bremner & Cartwright, 2004). They have a responsibility to support learning and

ensure the best outcomes for all children (DfE, 2015; Children and Families Act, 2014). Part of the "assess, plan, do, review" cycle to support pupils with SEND implies a need to set targets for learning (DfE, 2015). Difficulties are acknowledged in attempting to set targets for children with SLD such that they can exclude children from general learning curricula or lower expectations (Riddell, 2007), or the resources available to support target setting are not suitable for the children with SLD (Imray & Hinchcliffe, 2014). However, there is a widely held belief that targets can support the raising of standards (Bremner & Cartwright, 2004), improve accountability (Riddell, 2007) or progression, and are a "good idea and relevant to schools for children with SLD" (Male, 2000, p. 10).

However, during the initial visits and discussions with the classroom teachers, it was recognised that some students had a play target identified on their individual education plan (IEP), whereas other students did not have such a target. This absence of play targets alone does not provide a reason for changing the focus, but when set alongside other events it led to a decision to alter the study. School A had a set format for IEPs, but the content varied between the classrooms. For example, Teacher A had targets for each of her children for English, Maths, social skills, and play, whereas Teacher B had different targets for each child under various subheadings related to the needs of the child. For example, one child in Teacher B's classroom had targets for communication, sensory, toileting, and eating, whereas another child in the same teacher's classroom had targets for communication, Maths, behaviour, and physical. This variation in content can be attributed to multiple reasons, such as the needs of the child, the requirements of the curriculum, teachers' philosophies (Rotter, 2014), parent choice (Goepel, 2009), the specific setting or the disability identified (Kurth & Mastergeorge, 2010). Therefore, it is recognised that there are reasons for variation in the content, but considering the value of play in child development and the limitations in play ability identified for children with autism,

as well as the value in setting clear targets, it was predicted that more children would have play identified as a target.

Additionally, it was also noted that the limited focus on play in the IEPs was in contrast to the views expressed by the teachers and head teacher who claimed that play was a priority. Initial comments noted during visits with the head teacher and classrooms included the statements that "play is the foundation of my classroom" (Teacher C) and "we, as a school value play in our curriculum" (head teacher). These comments could be directly linked to the researcher or experimenter bias (Cohen et al., 2011), since the staff were fully aware of the research focus. However, as the study progressed and the researcher engaged further with the teachers, it became more evident that the conflict between priorities and the limited presence of targets was potentially linked more closely to the limitations in play baseline measures and assessment tools.

4.7.2 Teachers did not have a baseline measure for play ability

The next main concern arose during the piloting process of the interviews and the implementation of the CPRT intervention. The field notes recorded comments by the teachers that led the researcher to have concerns that they did not have a baseline measure for play and that the baseline measures available were not able to demonstrate small increments of progress.

As Kyriakides (2002, p. 808) defines it, "Baseline assessment, as its name implies, provides the base against which pupils' subsequent educational progress can be measured". However, when teachers were asked informally about a child's current play ability, all three teachers presented almost no evidence to suggest they had conducted initial play assessment to be able to clearly identify the child's current play ability. Teachers instead began speaking about how the play presented by the children was unlike that of typically developing children and related more to general ideas surrounding pretend play.

One of the pedagogical purposes of baseline data is the "identification of targets and learning strategies for individual pupils" (Lindsay & Lewis, 2003, p. 151). This indicates that a baseline measure is needed to set targets and measure progress for the next steps in learning. When teachers were probed further on baseline assessment, Teacher A stated that, in reference to specific play baseline measures, they did not have any means of measuring play except by observing the children during free time and using their own play knowledge. This was reiterated by Teacher B who claimed they just observe the play and "work on what they think they should". The three teachers in this setting suggested that they did not have a way to baseline play ability. This raised a problem for the research: how could the teachers implement a play intervention if they did not have a clear baseline?

In addition, during the implementation of the intervention teachers and support staff were asked prompting questions such as, "What is the starting point or did you identify the maintenance task?". There were varied responses to these questions, including "I thought I would try this and see how they get on" (TA 1) or "I'm guessing he is about this level as I have seen him do it before" (Teacher C). They did not appear confident or clear about the child's current ability based on their selection of word choices, such as "I thought" or "I'm guessing". Similar comments were informally stated throughout discussions with support staff and teachers. Therefore, when they started to implement the play intervention, the tasks they were prompting the child to complete appeared, as an observer, to be either too difficult or too easy.

Field notes of two scenarios recorded during the three-day intense support sessions are provided in Table 4 below. The scenarios demonstrate a teacher and TA encouraging actions that could be claimed as inappropriate for the child's current ability. It must also be mentioned that there were many excellent examples of implementation from support staff and teachers, but frequently the action presented could be more specifically related to a more precise level of play.

Table 4: Example field notes from CPRT intervention

Teacher A
Child D is sitting on their knees on the floor with their hands resting on their legs immediately in front of a large tray of pasta and beans. The child is looking into the distance and the member of staff is sitting on a chair near the child. The child remains still for just under approximately one minute looking out the window. The child then reaches with their right hand into the tray and touches the pasta slightly by rolling the pasta beneath their hand. The movement is small. The teacher moves forward and starts picking up pasta in their hand and counting each piece of pasta. <u>Notes:</u> The child was beginning to show interest in the object, therefore completing the "attention" aspect of CPRT. The teacher has moved the attention from the child-initiated touching. The next action for the child might be more related to rolling the pasta under their hand or touching different places in the pasta tray.
Teaching Assistant 4
Child B (non-verbal) is sitting at a group instruction table with a large box of wooden blocks immediately in front of them. The child pushes the box away and then quickly kneels on the chair to reach with both hands into the box. Selects one block and then sits back down into the chair. TA4 places a chair next to the child. The child stops and begins looking around the room. TA4 engages in dialogue, asking the child what they have in their hand. The TA starts building and then physically prompts child to select more blocks. This continues until a range of blocks are on the table. The child does not engage. <u>Notes:</u> The child had an object of interest. The TA interrupted the child's engagement with the object and uses large amounts of complex language. TA was encouraging the child to engage with more objects yet they only had one object and could first engage fully and complete actions with the one object.

Although there are potentially multiple reasons for the teachers' and TAs actions, such as their current understanding of play or attitudes towards the intervention, it was evident that the starting point or the baseline was not clear. The actions they presented appeared to suggest they did not know what action to encourage the child to complete next in the play sessions. If educators do not know the baseline for the child, it raises the question of how they can know where they are going.

The *SEND Code of Practice* (2015 p. 99) states that "teachers are responsible and accountable for the progress and development of the pupils in their class". This "progress and

development" begins with a clear understanding of the child's needs. Initial assessments should be conducted to form a baseline that will allow progress to be measured (NASEN, 2014) in order to "promote good progress and outcomes by pupils" and to be accountable for pupils' attainment, progress and outcomes (DfE, 2011, p. 10). However, good progress and outcomes are difficult to complete if there is not a clear baseline.

4.7.3 Teachers did not have a tool to measure small increments of progress

Conducting the CPRT intervention without teachers having access to a strong tool to measure progress was another reason the intervention did not proceed. When teachers were prompted further about the tools they used to identify the children's current play ability, brief reference was made to Bsquared and P-scales. Teachers explained that they used Bsquared and P-Levels to inform their teaching and measure progress. However, these resources do not measure small increments of progress (Imray & Hinchcliffe, 2014; Rochford, 2016) and are not focused on play. Playful concepts are included so that teachers could have some knowledge about the play ability, but there is not a specific reference to play categories or play abilities. Additionally, none of the teachers mentioned using a standardised or commercially available play resource to identify play ability or progress; although these too are not always created with specific depth (Linder, 2000; Taylor, Menarchek-Fetkovish & Day, 2000).

If teachers are using resources that do not measure small increments of progress, then they are not able to baseline and then demonstrate progress in an intervention. Literature (Faragher, 2014; Imray & Hinchcliffe, 2012, 2014) and recent reviews of assessment approaches for pupils with SLD (Rochford, 2016) imply that children with SEND will often take smaller steps in their progress if compared to typically developing children. Therefore, resources are needed that portray small steps in progress. Additionally, if teachers are expected to measure progress, their views might be considered during the development of the resource.

Conducting the CPRT intervention without teachers having access to a strong tool to measure progress was another reason the intervention did not proceed.

4.7.4 The play framework had limitations

Considering the research setting did not have consistent play targets, a baseline measure or a tool to measure small increments of progress in play, the researcher was then led to further consider the play framework that had been created. The original purpose of the play framework was for the researcher to measure play before and after the CPRT intervention through the framework's provision of greater depth in functional play measurement. However, it was becoming more evident that the teachers and staff were potentially the ones who also needed to use the framework. The resource could support their knowledge of small steps in progress; however, the framework still had limitations after the pilot stage of the original research. Additionally, the framework was created without the input from teachers and staff, who are potentially the users of the resource if they were to implement an intervention independently. Moreover, the small sample size limits the ability to create a tool that highlights a wide variety of play actions. Using a wider range of children with autism and SLD had the potential to expose a wider range of play actions, thereby changing the framework and potentially allowing for greater generalisability. Furthermore, the analysis began from the current literature using Libby et al.'s (1998) definition of functional play, instead of directly from the play actions as they were presented. A grounded-theory approach could remain closest to the data and more closely reflect the observed play behaviours of children with autism and SLD. Overall, collaboration with the teachers to develop the framework with a grounded-theory approach to the analysis could combat some of the limitations of the framework and create a usable resource for practitioners.

4.8 Conclusion

There was still a rationale for conducting a play intervention study; however, the researcher identified limitations during the pilot that needed to be investigated further before the CPRT intervention study could be soundly conducted. The conclusions drawn from the initial stages of the research revealed that teachers did not have a means of establishing baseline play skills that could demonstrate small increments of progress, therefore potentially limiting the ability to effectively implement an intervention. Furthermore, it was recognised that while the created framework had limitations, it also had great potential to be further developed in conjunction with teachers and become a useful resource that teachers and staff could use in supporting future functional play interventions.

This study fully recognised that the intention of the pilot study was not to seek answers about teachers' knowledge of baseline measures and measurement methods; nevertheless, concerns arose. Therefore, it was considered that the implementation of an intervention without a clear baseline or means of measuring small increments of progress was deemed unethical. This is not to suggest that implementing CPRT is not useful, but prior to implementing the intervention a strong baseline needs to be established that is suitable for this group of children. As stated, the original focus was to implement a play intervention, but the research direction was altered to focus on developing a functional play framework to support children with autism and SLD. The redesigned study is reflected in Figure 6 and the reformulated aim and objectives (as stated in Chapter 2) are outlined below.

Aim: To examine the functional play presented by children with autism and SLD in order to design a play framework that supports functional play development in the classroom.

Main objectives of the study:

1. Describe and analyse the functional play actions completed by children aged 3-11 and diagnosed with a combination of autism and SLD.

2. Create a framework for identifying and analysing functional play skills as exhibited by children with autism and SLD.
3. Collaborate with teachers to generate a functional play framework that enables them to support the development of functional play skills of children with autism and SLD in the classroom.

5. Chapter 5: Study 2

5.1 Focus and review of rationale

The focus of Study 2 was to address the concerns identified in the literature and the limitations that emerged from Study 1. Through observations of children's free play and interviews with classroom teachers, Study 2 aimed to describe and analyse the functional play skills of children with autism and SLD in order to create a functional play framework. Study 2 created the functional play framework and the next study (Study 3) further refined and developed the framework while also engaging with teachers to identify the usability of the resource.

The literature review and Study 1 identified a need for further research into the area of functional play (Dominguez et al., 2006; Lifter, 2000; Williams et al., 2001). The true extent of the value and need of a strong functional play framework became further apparent through the initial processes in Study 1. Although history has shown the value in baseline assessment (Lindsay & Desforges, 1998) and debates continue regarding assessment measures for pupils with SEND (Rochford, 2016), it became more prevalent as Study 1 progressed that the framework or measurement and baseline component needed further development in order to support teachers' implementation of play interventions. The original aim of implementing a functional play intervention was revised to develop a strong functional play framework that clarified the play actions present for children with autism and SLD. As detailed in Study 1, the four main concerns identified were:

- Targets for play were not present
- Teachers did not have a baseline measure for play ability
- Teachers did not have a tool to measure small increments of progress
- The play taxonomy had limitations

5.2 Design overview

The design of Study 2 included a three-stage process of collecting and analysing data (Figure 8 below). The first stage of the study included observations of 19 children from nine classrooms across two primary special schools, conducted and analysed through a grounded theory analysis. Alongside the observations, nine teachers were interviewed and thematic analysis identified the key themes relating to their perspectives about functional play. The interviews and observations were collected concurrently; they were initially analysed as separate data then brought together. Both elements were viewed as equal in importance and the data was used to create a framework that was then considered alongside the original framework developed in Study 1 and the key literature. Combined, there were a total number of 27 children observed (eight from Study 1 and 19 from Study 2), which contributed to the creation of the final taxonomy.

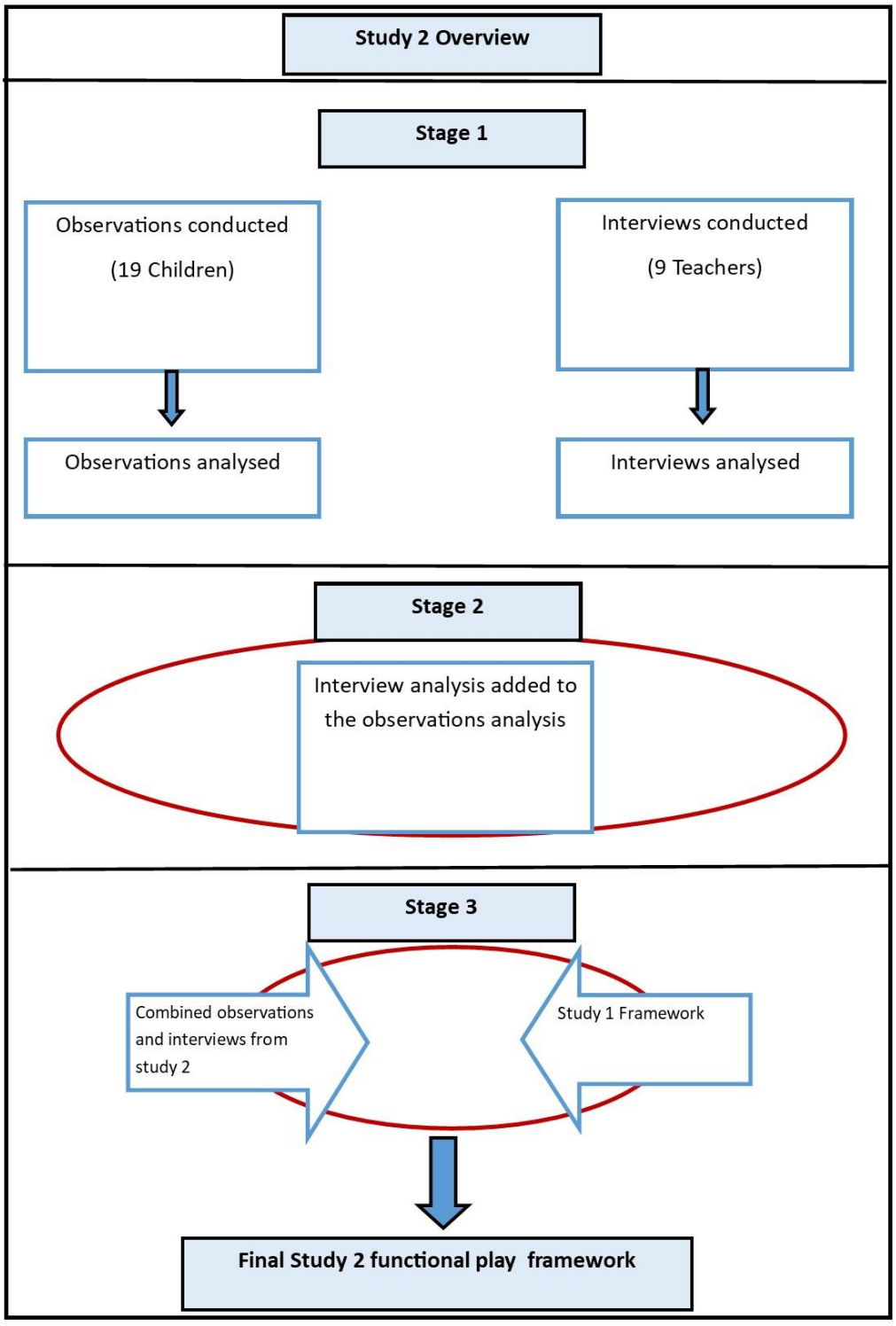

Figure 8: Study 2 overview (points of inference highlighted in red)

5.3 Approach to the design

In line with the overall approach, this study asserts a pragmatist approach that focuses on using the radical middle to build a strong research design (Onwuegbuzie, 2012). As claimed in the overview of the methodology presented by Figure 3, different parts of the research acquired knowledge from different viewpoints. The observations in this study lean towards an objective standpoint that implies that the observed play actions are measurable (Coolican, 2009) and are independent from the way the child thinks or feels (Elgin, 2010). However, the interviews were conducted in a way that suggests the knowledge was being created together (Bryman, 2012), with the teachers as active agents in the construction of the knowledge regarding functional play. Therefore, the study used the observation to identify what play was occurring and the interviews as a means to understand a teacher's individual experiences regarding the functional play that they observe.

5.4 Timing and purpose of mixing data

As discussed in the methodology overview (Chapter 3), this study aimed to present a rationale for points of inference, rather than selecting a predesigned label (Creswell & Clark, 2011; Teddlie & Tashakkori, 2009) for the process of collecting data in MMR (Figure 8 above). The methods used in the study were independent of each other and were given equal weighting until after the first analysis phase. This is the first point of an interface or, as it is described by Guest (2012, p. 146), "any point in a study where two or more data sets are mixed or connected in some way". The purpose of bringing together the observation and interview data after all the data is collected is to strengthen the potential usability of the framework by bringing together different viewpoints on one topic (Creswell & Clark, 2011). The process of embedding the teachers' views into the play framework is vital to enable users to comment both on the validity of the framework and also the usability of that framework as a tool. In addition, the interviews

were added to the observations, rather than the other way around, because the aim of this study was still focused on describing the actions presented by the children and not on the teachers' interpretations of the children's play. However, preference was not given to one data set over the other since each was viewed as equally important to the study.

This final portion of Study 2, or the second point of interface (Guest, 2012), was focused on using the previously analysed data (Study 1 play framework; see Figure 7) to conduct an iterative process of scrutiny and refinement with the newly created Study 2 functional play framework. Within this section, the data collected in Study 2 is seen as holding more weight as it was developed from a larger sample size and from a grounded theory approach. The purpose of combining this data was because the study recognised the value of using a wide variety of children; therefore, to exclude the observations from Study 1 would have limited the breadth of the play actions viewed. Overall, all three stages in Study 2 (Figure 8 above) and all three studies in this thesis (Figure 4) build on the previous data in order to identify the functional play of children with autism and SLD, while also fully considering the views of the teachers who support this group of children. Conducting the interviews alongside the observations potentially creates a resource that embraces the teacher's voice and is accessible to the users.

5.5 Sample

5.5.1 Schools

Purposive sampling (Cohen et al., 2011) was used to select the schools in Study 2. The research required multiple children and available classroom teachers to meet specific criteria; therefore, six special schools for children with SLD were initially contacted. The schools were contacted based on information on their websites and the researcher's personal knowledge of the schools. Three schools accepted an initial meeting and three schools did not respond to the initial email

regarding participation. After initial discussion with three schools, two of them were selected and opted to participate; the other school opted not to participate due to additional commitments with other researchers.

School B is located in the northwest of England. The school provides specialist provision for a range of pupils with severe learning difficulties, and 50% of the children are diagnosed with autism. School B is spread across three sites and caters for 132 children of ages 3-11, with mostly white British heritage (Ofsted 2013). School C is located in the southeast of England and has 112 pupils aged 3-11with a high proportion of students of minority ethnic heritage. Traditionally, School C caters for children with PMLD; however, as stated in the Ofsted (2014) report, they currently provide education for a greater range of pupils, including many with autism and SLD.

Both schools have an above average level of students who are supported by the pupil premium, and both are categorised as "Outstanding" by Ofsted. School B is reported as "outstanding" with respect to achievement of pupils, quality of teaching and leadership/management, and is classed as "good" with respect to pupil's behaviour. School C is classed as "outstanding" in all categories reported by Ofsted. In addition, both schools use the P-scales (discussed in section 2.9) and each school has developed a topic-based curriculum to support the learning of pupils. (An example curriculum is in Appendix 10.)

Overall, both schools presented an interest in play and are similar in relation to size and curriculum; however, they present diverse characteristics in regard to student population and location. School C presented more children from a minority ethnic background and the schools are also located in different parts of the country, therefore ensuring a greater opportunity for a variety of participants. It is recognised that both schools are identified as outstanding and in order to ensure an even greater variety of children, the study might have included a school that

was not as highly assessed by Ofsted. However, the study placed greater emphasis on schools portraying an interest in the area of play research.

5.5.2 Participants: children

The sample size selected for Study 2 was based on using all available children aged 3-11 in both schools who met the basic and specific selection criteria in the available classrooms. Nineteen children (15 boys and four girls, ages 3-11, with an average age of 6.89) were selected and consented to participate in the study. Overall, the basic criteria for inclusion of the participants was: ethical consent provided by parents/carers (ethics section 3.5); a clinical diagnosis of autism; and a description of severe learning difficulties or global development delay in their statement of SEN. Children were excluded if they had a diagnosis of autism but not a diagnosis of SLD or global delay, even when teachers identified the child as having an SLD.

In addition to these basic requirements, the study required pupils who presented specific play skills surrounding the category of functional play. Therefore, the additional criteria for inclusion were:

- Working in or around a P4 level
- Presents very limited or no symbolic or pretend play
- Will hold an object and complete/attempt an action

The criteria was similar to that of Study 1; however, in this study, in order to further develop the data collected, multiple purposive sampling techniques (Teddlie & Tashakkori, 2009) were used to select the children. The selection process emphasised more inclusion of extreme case sampling than in Study 1. This process of maximum variation sampling (Cohen et al., 2011) or extreme case sampling (Teddlie & Tashakkori, 2009) involved encouraging teachers to include participants who were at the furthest ends of the selection criteria. Therefore, the intention was

to ensure a diverse yet focused sample group within the given criteria. However, children were excluded if they would not engage with an object, frequently engaged in symbolic play or were consistently identified to be working over the P4 level (discussed below) in most areas of learning. Teachers were provided with a list of required characteristics and engaged in detailed conversations with the researcher to ensure clarity of the specific criteria. Overall, the study sought to examine the variation in play which surrounds the exact functional play definition and not simply to include those presenting the precise definition of functional play as interpreted by each individual teacher.

5.5.3 Measurement of children's overall ability

The focus of this study was on the play that children with autism and SLD present during everyday classroom situations rather than on the cognitive ability of the children or a comparison with mainstream norms that is typically presented in functional play research (e.g., Thiemann-Bourque et al., 2012; Williams et al., 2001). This study rejected the process of establishing cognitive ability through the collection of baseline assessment criteria and the use of standardised tests. Teachers in the settings were used as experts regarding their knowledge of the child's ability and suitability to participate. The focus was to use the knowledge of the teachers and the nationally (England) recognised and commonly used assessment system (P-scales) to identify the level or ability of the children.

Baseline assessment criteria, standardised testing of cognitive ability and standardised play tests were considered for clarification of the overall ability of the children. Williams et al.'s (2001) study on functional play used the Bayley Scales of Infant Development (Bayley, 1993), MacArthur Communicative Inventory (Fenson et al., 1993) and the Vineland Adaptive Behavioral Scales (Sparrow, Balla & Cicchetti, 1984). However, the focus of their study was to allow comparability of play ability with a control group of pupils with Down's syndrome.

In addition, earlier studies, such as that of Ungerer & Sigmans (1981), identified the mean mental age using general intelligence scales such as the Cattell Scale (Cattell, 1940). However, their study was examining play in relation to language. Many studies examine the play of children with SEND in relation to children with typical development, whereas this study was focused on observing the play action specifically of children with autism without comparison to mainstream norms.

Although the comparability of results with other studies can be limited because of this decision, the specific ability of the children was, however, identified through a commonly (in England) identifiable assessment measure. Furthermore, due to the emphasis on creating a usable resource for teachers, the study aimed to ensure that teachers could relate to the sample when considering the data collected as they would be the users of the resources created. This would, therefore, make the resource more accessible for classroom teachers. For clarity, Appendix 2 precisely states the P4 level (Dfe, 2014) used by teachers.

5.5.4 The classrooms

Nine classrooms were visited throughout Study 2, five from School B and four from School C. The general composition of each class was 8-10 children with one qualified teacher and two or three teaching assistants whose qualifications varied from those with no qualifications to those who had Qualified Teacher Status. All classes had a combination of children with an array of special educational needs, as well as physical needs from severe to moderate, and were grouped by age. The classrooms varied in design from rooms with minimal resources on display to classrooms with numerous freely accessible resources. The majority of classrooms had designated spaces for specific activities; for example, a carpet space, a group table space and individual work stations. All classrooms used visual aids to supports the needs of the pupils but at varying degrees of implementation. For example, all classes used visual timetables, but

some teachers used symbols on resources all around the classroom, whereas other teachers only had essential resources labelled with visuals. Overall, all classrooms resembled each other, but with differences that recognise the characters and styles of the individual teachers. By including a range of classrooms, and not simply those classrooms that implemented all the latest teaching methods and resources, some diversity was included in the sample, something that was considered as an asset to the study.

5.5.5 Recruitment of teachers

Reputational case sampling (Teddlie & Tashakkori, 2009) was used to select the teachers for Study 2. The teachers in the study were recommended by their head teacher as staff members presenting an interest in the area of play and demonstrating a willingness to participate in research. Teachers were informed about the research topic from the head teacher during the weekly staff meeting and were invited to attend an information session. The information session introduced the research and explained the role of the teachers in the research. Five teachers from School B and four teachers from school C attended the meeting; all the teachers decided to participate and written consent was obtained from each teacher (Appendix 11). The teachers in the study represented a wide range of experience: two teachers were newly qualified, three teachers had 5-10 years' experience in a special school setting, three had 10-15 years' experience and one teacher had 19 years' experience in specialist and mainstream settings. One teacher was male and eight teachers were female. Ideally, the research would have had a stronger representation from male teachers, as statistically one out of four teachers is male (DfE, 2016). Overall, the sample represents teachers with varying degrees of experience from two settings in different geographical locations in the UK, and each teacher had an interest in the area of play.

5.6 Method: Observation

5.6.1 Observation structure

The purpose of the observations was to identify the visible actions and behaviours demonstrated in play by children with autism and SLD in order to create a functional play framework. Parents were provided with written information about the research and asked to provide written consent for video observations of their child (Appendix 5). The observations were arranged with each classroom teacher and occurred across a three-day period for School B and across a two-week period for School C. As in Study 1, the observations were conducted using a video camera for two five-minute observations for 19 children. The observations were evenly spread across the morning and afternoon on different days of the week in an attempt to obtain a wide range of play actions.

Again, the observations were conducted in a natural play situation in the child's classroom. Specifically, all children were recorded during free-choice time periods. This was a period of time that was not a structured lesson and during which the children were free to choose an activity. Children were not working directly with an adult, nor was the activity an action they had been required to complete. The children were prompted to select from a Picture Exchange Communication System board or visual display if they did not immediately engage in some type of movement once their free-play time began, as this was standard practice in the classrooms.

Furthermore, during the observations the research considered the importance of retaining the naturalness in the observation setting. Ensuring a high level of naturalness to the observations implied consideration of positioning during the observations, avoidance of interactions and consideration of the amount of time spent in the class (Denscombe, 2007). In order to ensure familiarity with the children and investigate practicalities in the classroom, one day was spent in each of the schools supporting the children and teachers.

The intention of the research was to be a complete observer. Cohen et al. (2011) describe such an observer as a researcher who does not participate in the group but who observes fully without being covert. However, this was not always practical given the realities of classroom-based research. The lines between complete observer and observer-as-participant can easily become blurred. There were times in this study when the researcher was forced to engage due to safety and respect for the children (see ethics section 3.5). An effort was consistently made during the observation to avoid interrupting the natural play. This was more difficult in some classrooms as there were instances when behaviour and safety needed to be supported. The researcher's location or position, when possible, was at a distance with the use of a zoom lens to ensure details were obtained.

The study considered the use of specific toys/objects similar to those featuring in other research studies (Baron-Cohen, 1987; Dominguez et al., 2006; Libby et al., 1998; Ungerer & Sigman, 1981), but it was decided to take a completely authentic approach to the observations similar to the free-play classroom observations conducted by Holmes & Willoughby (2005). This approach allowed the children to select their own object or toy of choice and then interact. Considering that previous research has suggested that children with autism have a preferred object of interest (Dominguez et al., 2006) or require motivation to engage with an object (Harrop et al., 2017), this study took the view that the use of designated toys could potentially limit the play variation and restrict natural play actions. The aim was to view the actions children presented and not to force children to interact with given objects which they may not have had an interest or desire to interact with, thus providing observations that demonstrated what they can do or choose to do with objects.

A full choice of objects was provided based on those available to the children on a daily basis in the classroom settings. This varied depending on the classroom, but it was considered as an enhancement to the study's ability to identify the play actions that children with autism

and SLD present. However, it could be argued that there are limitations in the play presented based on the objects or activities available in each individual classroom. In order to combat this view, more than one observation at different times of the day was conducted.

5.6.2 General overview of analysis of observation

The analysis of the observation closely adhered to the protocols associated with grounded theory (GT) analysis. In some ways, GT is similar in its overall approach to thematic analysis (Braun & Clark, 2006; Flick, 2014; Bryman, 2012). Indeed, thematic analysis (discussed in Section 5.8) might have been used for data analysis in the current study. However, the decision was taken to employ GT analysis for reasons related to the needs of the research. This section sets out, therefore, the rationale for adopting GT for the data analysis. It provides a general overview of GT (the specific steps taken are discussed in the results section), and it identifies the overlaps and differences between GT and thematic analysis.

GT can be adopted as a "full methodological 'package'" or it can be used only for coding procedures (Walsh et al., 2015, p. 581). Within this study, it was used as a coding procedure. GT is viewed here as a method to analyse data through an iterative process of systematic coding that builds theory from the data collected, rather than through a deductive process of verification of prior theory (Glaser & Strauss, 1967a). The aim of the analysis of the observations was to systematically identify the specific categories of functional play that were presented by children with autism and SLD in order to create a new functional play framework.

The reasons for selecting the GT approach for the coding procedure are based on the needs of the research. The study recognised the overlap between GT and thematic analysis, as well as the debates regarding the relationship between the two methods of analysis (Braun & Clark, 2006; Flick, 2014; Bryman, 2012). These debates indicate conflicting views about process, procedures and definitions (Bryman, 2012; Walsh et al., 2015). However, the current

study selected the GT coding procedure for three core reasons: first, GT has the potential to recognise precise and detailed categories; second, GT stays closer to the data than do other approaches; and third, GT enables the development of theory (or the framework) to be tested in future.

As argued in the literature review, there are currently only broad or minimal descriptions of functional play for children with autism and SLD, which limits the ability to measure and support learning (Imray & Hinchcliffe, 2014; Lifter, 2000). Therefore, the method of analysis in this research needed to be able to identify small and precise play characteristics. This would allow broad themes to be broken apart so that a framework could be created that combats the criticism of resources or assessments which portray large steps in learning and are hence not appropriate for children with SLD (Rochford, 2016). Both thematic analysis and GT scrutinise the date to identify patterns; however, GT is recognised for its ability to delve deeper than thematic analysis into a subject area and identify small nuances (Charmaz, 2014). Thematic analysis, on the other hand, is recognised for its potential to identify overarching, main themes within a data set (Howitt, 2016), and it is frequently identified as an approach that underpins GT or is a precursor to conducting GT (Collican, 2009; Willig, 2013; Newby, 2010).

Different components of the research aimed at different outcomes, so the analysis of the data differed accordingly. Study 2 observations needed a method of analysis which provided the greatest opportunities to focus on intricate detail, rather than the broad themes which are developed from thematic analysis (Howitt, 2016). Broad themes were, however, necessary in other components of this research. For example, the interviews in Study 1 and Study 3 sought broad themes regarding teachers' views about play and the play framework, and therefore it was necessary that thematic analysis was used to analyse the data in those situations. However, Study 2 observations needed to identify the smallest components

identified within the observation; for this, GT analysis was the most suitable approach for providing the meticulous level of precision through the coding processes.

Key features of GT are that it is driven by the data to create theory and that it considers the relationships between the data (Collican, 2009; Glaser, 1992; Charmaz, 2014). It was essential that the study stayed focused on and close to the data to avoid being influenced by previous play frameworks that are frequently based on children with typical development. As discussed in the literature review, play frameworks frequently do not address the needs of children with autism, so the aim was to create a framework that was grounded in their actions and play movements. The framework within the current study was developed directly from the observations of children with autism and SLD; it was not based on observations of children with typical development. Through the structured process of GT analysis and the constant comparison of the data, the research was able to identify key categories of play and consider how the categories fit together to create a framework that is usable by professionals.

GT's emphasis on considering the relationships between the categories was a vital consideration (Collican, 2009; Willig, 2013). More specifically, during theoretical coding (as described in Section 5.7) the process of considering connections between substantive codes and integrating the memos provided the opportunity for scrutiny of relationships. Approaches such as thematic analysis "are not expected to be related or inter-connected in some way, whereas categories identified from GT analysis do need to be explored in terms of their relationships with each other" (Howitt, 2010, p. 175). A similar view is expressed by Collican (2009, p. 259) who states that "TA [thematic analysis] does not require that the themes be somehow linked or integrated into an overall theoretical model". It was essential that the key categories identified were able to demonstrate some relationship to each other in order to create a cohesive and usable resources for practitioners; therefore, GT analysis was selected over thematic analysis.

Furthermore, GT also emphasises the building of theory that can later be tested (Newby, 2010). Although the precise definition of theory within GT is debatable, the aim of this research was to create a framework which future research could test (Bryman, 2016; Howitt, 2016). Therefore, this study has intended to lay the foundations by developing a framework or theory that can be tested and used in the future. Consequently, the use of GT to analyse the data was especially appropriate for this research's future intentions. In summary, given that current play frameworks have been criticised for the limited specificity and focus on children with autism and SLD, GT was adopted because it offers a greater ability to identify small nuances, to scrutinise the relationships among the data, and to emphasise future testing. Overall, although other approaches were feasible, GT was viewed as the most salient approach to address the current concerns in both the literature and this research.

This study associated generally with classic GT using the ideas put forth by Glaser & Strauss (1967) and more recent works by Glaser & Holton (2004) and Holton (2010). A classic, Glaserian approach was the foundation of the analysis, although the present research is not an exact replica of a Glaserian approach. The rationale for choosing to base the analysis on a Glaserian rather than a Straussian approach was based on the research goal of remaining as close as possible to the data. It was recognised that a classical Glaserian approach allows for greater fluidity in the process (Rupsiene & Pranskuniene, 2010) with limited structures. A Straussian GT approach is credited with providing the greatest structure (Kenny & Fourie, 2015), but it has been criticised for creating complicated structures (Charmaz, 2014) that "interrupt the true emergence" of theory from the data (Glaser, 1992, p. 4). Cooney (2010) recounts authors who have been distracted by the process and have focused more on following the procedures than on engaging with the wider picture of the data. As Glaser has stated: "GT is simply the discovery of emerging patterns in data" (Cited in Walsh et al., 2015, p. 593). It is

this viewpoint and focus that is exactly what this research attempted to do with the data, without being forced to use processes that possibly limit the creativity. This study was seeking to stay close to the data to avoid replicating categories of play that have been developed on the basis of observations of typically developing children. For this reason, this study used a Glaserian approach rather than the more structured Straussian approach.

Although a Glaserian approach was selected as a foundation, this study did have variation in approach, specifically regarding the use of the literature. Researchers consistently attempt to interpret how the literature should be used within GT and it is frequently suggested that Glaser implied that a literature review is not necessary before beginning the research (Charmaz, 2014). However, Glaser & Strauss (1967, p. 3) acknowledged in a footnote that "of course, the researcher does not approach reality as a tabula rasa. He must have perspective that will help him see relevant data and abstract significant categories from his scrutiny of the data." The current study did embark on a review of the literature and accepts that the researcher holds some prior knowledge, but that measures can be used to limit the impact on the results. Additionally, one of the final stages of development of the categories was to consider the categories in relation to current trends and ideas around child development. The literature was used within the data analysis process as it was "woven into theory as more data for (use in) constant comparison" (Glaser, 1998, p. 67).

Another deviation from the original process included the sampling procedures. Glaser and Strauss (1967, p. 45) describe theoretical sampling as a "process of data collection for generating theory whereby the analyst jointly collects, codes and analyses data and decides what data to collect next and where to find them, in order to develop his theory as it emerges". This study only collected one phase of data that was used in Study 2. However, the data analysis from Study 1 supported the process of data collection by encouraging larger sampling from a more diverse population of children with autism. Additionally, the GT approach used in the

current study is for analysis and not for research design; therefore, the procedures suggested often refer to using GT as a methodological approach.

Deciding on a path to allow the research to stay as close as possible to the data was complex, but a classic Glaserian grounded theory approach to data analysis allowed for the focus to remain on developing categories based on the observed data. In summary, as seen in Figure 9 below, the analysis process of the classic Glaserian approach involved interval recording followed by substantive coding that included open coding and selective coding. This involved open coding line by line and incident by incident, a process that started to break apart the transcript or the observation as the initial stages of constant comparison also began. This process of constant comparison is a continual cycle of checking the current data with the emerging data to refine (Holton, 2010). As the core categories emerged, a process of selective coding began whereby categories were added and removed to reach a point of saturation in which no new categories developed. The process then moved to identify core categories and completed a final process of theoretical coding that examined the relationships between the substantive codes with the use of memos. This was then considered within the current literature on play and child development.

Overall the process of data analysis used in this portion of the study reflected the original work of Glaser and Strauss (1967), along with the coding guidance of Holton (2010). The choice in this analysis process reflects the need for a more detailed description of the functional play that children with autism and SLD present, instead of the frequently used approach of describing play for children with autism through the play actions of typically developing children (e.g., Linder, 2000; Rubin, 2001).

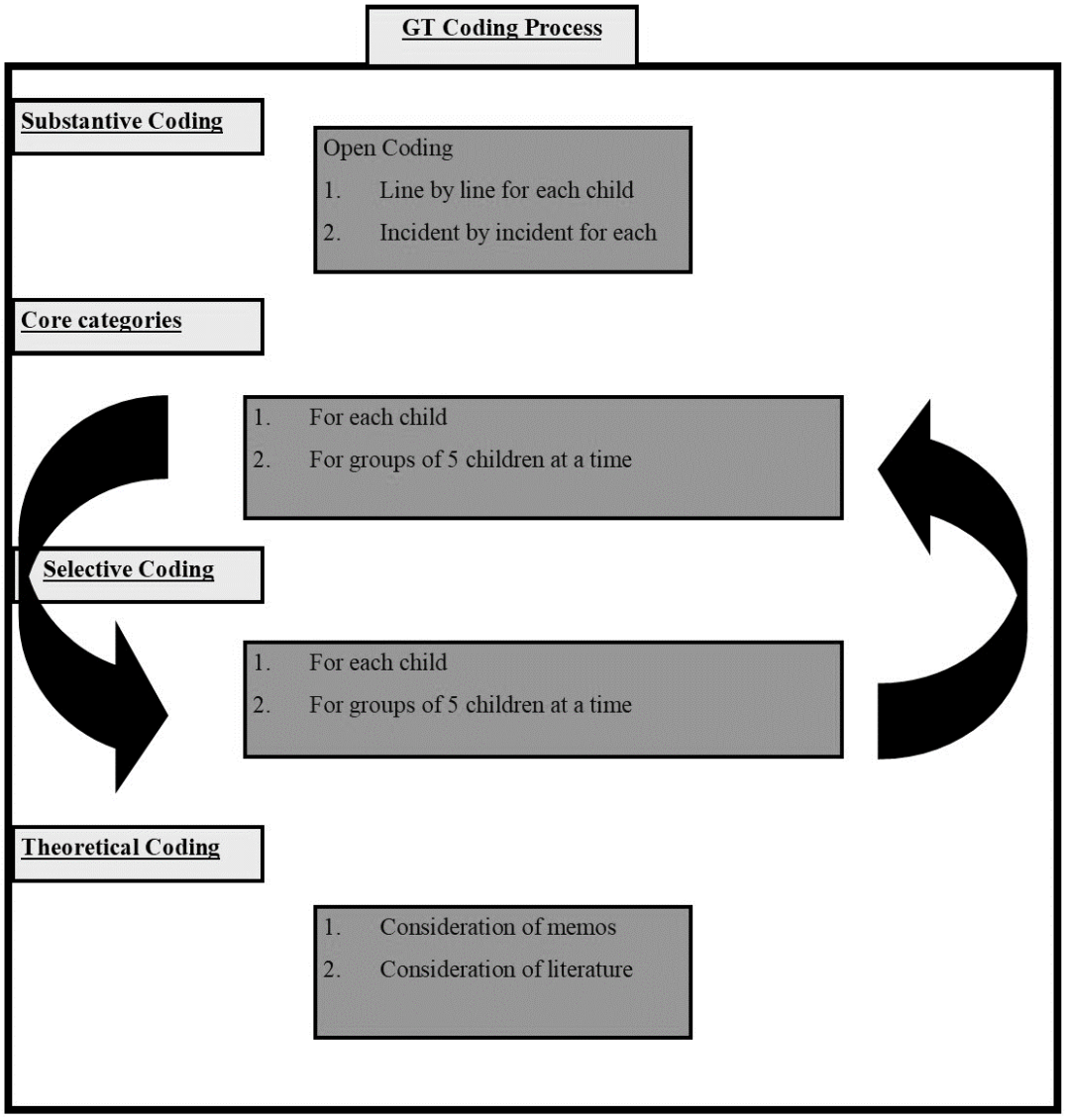

Figure 9: Data analysis process for observations

5.7 Observation: Results

The initial process of analysis involved using Observer XT 8.0 software to examine the videos and describe the actions at 30-second intervals, with the intention of breaking down behaviours into "fixed action patterns" (Archer, 1992, p. 15). The observation sheet (Appendix 12) was similar to that of Study 1 and was used to organise the observed play behaviours, although not as pre-defined categories to examine. The observation sheet included an image of the object,

detailed description of the actions, the order of actions, language, actions outside the direct engagement with the play object, additional observations and, finally, a section to identify any ethical concerns (Appendix 13 examples). The use of a clear observation sheet instead of open field notes allowed for a specific focus and meant that both intra-observer and inter-observer percentage agreement could be measured.

The process of ensuring reliability was ongoing throughout the research, but began immediately after initial documentation of the results from the videos. Pellegrini, Symons, & Hoch (2004) discussed the importance of intra-observer reliability alongside inter-observer reliability. Intra-observer reliability refers to the consistency of an individual observer over a time period and is necessary to ensure consistency with oneself before consistency with other observers is completed. A second coding of two videos was completed and the intra-rater reliability was reported as 93%. Although there are possibilities of chance agreement, this stage is still regarded as vital (Pellegrini et al., 2004).

Two different coders were used in this study to strengthen the inter-observer reliability and to optimise accuracy in the observations. The first coder (Coder 1, who was also used in Study 1) was a retired teacher with extensive classroom teaching experience with pupils with autism and SLD. Coder 1 was selected to be involved with the coding process due to their expertise and familiarity with the behaviours and actions that children with autism and SLD present. The second coder was a final year student on a BA (Hons) degree course who was recruited through an open invitation to final year students on the degree course. The student engaged in a brief discussion about the topic and the content of the videos. The reason for selecting Coder 2 was to ensure the information collected was not bespoke to professionals with extensive experience.

After descriptive accounts of the video observations were completed for each coder, discussions were held regarding any areas of disagreement. Yoder & Symons (2010, p. 141)

have claimed that the most important part of agreement checks are the discussions surrounding the results. They call these discussions "discrepancy discussions". Discrepancy discussions were conversations surrounding point-by-point agreements and disagreements as a method of reviewing the accuracy of two people who observe the same behaviour. Therefore, detailed discussions were held regarding any discrepancies. Overall, the inter-observer percentage agreement was calculated (agreement/disagreement x 100) for Coder 1 as 82.5 % and Coder 2 as 90%. After the initial observation and the inter- and intra-observer agreement process, the analysis of the data began.

5.7.1 Analysis and results of observations

The use of key components from classic grounded theory allowed an opportunity for categories to be established based on the data collected, instead of a traditional deductive approach which requires established categories to be hypothesised and which tends to focus on verification of theory (Kelle, 2007). This section of the results will expand on the initial ideas put forward in the introduction to the observations process and clarify the exact procedures while presenting the results obtained.

During the initial stages of coding, the process involved an openness to the many possibilities that the research might unveil, while also recognising that the researcher does not come to the study without any knowledge or thoughts (Glaser & Strauss, 1967). Researchers should acknowledge and engage with the potential influences of previous experiences or knowledge (Charmaz, 2014). Therefore, it is acknowledged here that throughout the data collection and analysis process there was prior knowledge of other established play categories. The researcher had to ensure that there was a close connection between the data and the codes to combat this influence. In addition, in the beginning stages of coding it was acknowledged that the codes could be limited by the language and perspectives of the researcher (Charmaz

2014). As Charmaz (2014) has commented, this should serve to encourage the development and deeper examination of hidden assumptions or beliefs. Throughout the coding process, assumptions regarding the interpretations and clarity in descriptions were continuously reviewed. In addition, a structured process of inter-observer agreement was implemented. Furthermore, before discussing the exact process of analysing the data, it must be stated that the process described below was iterative rather than linear, since there was a constant return to different stages of the data to further clarify codes and connections between codes (Birks & Mills, 2011).

5.7.2 Substantive coding (open coding and selective coding)

In the first stage of coding, line-by-line open coding from the transcribed observations was completed to assign words or short phrases to reflect the actions that were presented (Holton, 2010; Charmaz, 2014). Line-by-line coding was selected for initial implementation over the use of coding single events as prescribed by Glaser (1992). This was selected to challenge the traditional assumptions regarding the actions and to identify potentially concealed actions by breaking apart actions for further analysis. This was particularly important to ensure a focus on the actions presented instead of putting forward preconceived assumptions about child development that might be brought to the data. An iterative process of constant comparison of collected data and theoretical sensitivity is part of the open coding process so as to alleviate and recognise preconceived notions (Kelle, 2007).

In addition to line-by-line coding, a further code was given for each incident. The use of incident-by-incident open coding allowed for a greater and more holistic context for the actions that occurred than did line-by-line coding. Furthermore, compared to simply coding by topics, open codes (where possible) reflected the use of gerunds (a noun made from a verb by adding –ing) and allowed greater focus on the actions (Charmaz, 2014; Glaser & Strauss,

1967). Through using gerunds "we gain a strong sense of action and sequence" Charmaz (2014 p. 120). This "action" is a key component of the research, so providing some type of sequence within the action supports a more holistic understanding of the play. This is important because the current research is not focused on interpreting the meaning behind the actions but on the actions themselves. The initial process of open coding line by line and incident by incident can be seen in the example provided in Table 5 below. It can be noted that occasionally the line-by-line code portrayed different actions to the incident-by-incident code depending on what words were available on each specific line of transcription. The incident-by-incident coding connects the action, whereas the line-by-line coding breaks up the behaviours. Additionally, it can be noted that there are a large number of codes in the initial process, but Holton (2010) has commented that, through trust and patience in the GT approach and the beginnings of pattern recognition, the codes will decrease. In Study 2, the children had on average 72 line-by-line codes and 47 incident codes.

Table 5: Example coding line by line and incident by incident

	Line by line	Incident by incident
1:00	Whole body movement, moving in a direction Holding one object with two hands, moving Changing location, walking Looking at one object in distance Contacting object to object Momentarily looking elsewhere, moving away, turning object Moving two objects with hand, changing direction of object	Large body movement with object Changing area of class Moving whole body movement, while looking and holding object Contacting object Changing focus Vocalising and holding object Leaving object Manoeuvring object through hands
1:30	Dropping object, repeating Same action with two of the objects, full body movement Looking at specific component of object, turning Contact with own body, turning over Opening book in an effective manner, looking Moving object out of the way, closing Looking at specific aspect, leaning Hands on own body	Repeating exploration with two separate objects Following object with body and making contact Touching own body Turning over until upright position and opening and looking Moving second object out of the vicinity Finishing with object in designed manner Moving own body to different position and touching different body part

The next process of the initial open coding procedure saw the development of core categories through the use of constant comparison. The codes moved from descriptive codes to conceptual codes through a process of constant comparison (Holton 2010). Holton (2010, p. 30) has advised that "the criteria for establishing the core variable (category) within a grounded theory are that it is central, that it relates to as many other categories and their properties as possible and that it accounts for a large portion of the variation in a pattern of behavior". This means comparing line by line and incident by incident to develop a conceptual code and then moving to further examine the incidents and lines to the conceptual codes. Codes at this stage were viewed as provisional and subject to change to further fit the data (Charmaz 2014). This was not always a top-down approach of dividing major categories into subcategories but instead a process of "find[ing] major categories by carefully comparing the initially found categories (which may later become subcategories) and integrating them into a larger structure" Kelle (2007, p. 194). For example, this process can be seen in Table 6 below, which demonstrates some of the codes that moved from small ideas to larger ideas and were then broken back down again.

Table 6: Process of developing core categories

Original Child 4 codes:	**Two codes merged to become:**	**All three codes merged to become:**	**Final position in framework:**
Moving away from object	Changing location with object	Positional movement related to the object	All original codes are seen again separately under Body Position category
Walking with object			
Returning to object	Returning to object		

Each of the core categories developed from the individual line-by-line and incident-by-incident codes per child were added in groups of five students to combine the separate cases in order to develop the core categories across the individual cases. This was completed by

combining the open codes for groups of five children at a time and continued by adding the groups of children together until core categories were developed from the smaller groups of children, as can be seen in Table 7 below.

Table 7: Process of combining individual data together

1: All children coded separately	2: Cross-case analysis of small groups of children	3: Further cross-case analysis of larger groups of children	3: Cross-case analysis of all children
Child 1	Children 1-4		
⇩	Children 5-9	Children 1-9	All Children
⇩	Children 10-14	Children 10-19	
Child 19	Children 15-19		

The next stage of the substantive coding process involved selective coding. This was a process of reducing the categories available (Holton, 2010). However, this did not involve selecting one core category to use, because this study had an understanding that the current categories on functional play are too narrow and that greater detail is needed to support the teacher and children with autism and SLD. Therefore, the aim was to develop a range of core key actions, but the selective coding allowed for the scrutiny to reduce repetition and overlap.

Examples of selective coding can be seen in Table 8 below. The process of selective coding continued until theoretical saturation was reached – the stage at which there were no more new codes presented and all subcategories were visible within the current codes or categories (Glaser & Strauss, 1967). This process was completed over a six-month period to

allow for reflection on the categories. It should be emphasised that the process was not as linear as the table suggests, but was in fact a process of constant comparison of data.

Table 8: Selective coding example

Example of initial code	**Example of codes combined/removed during selective coding**	**Final category**
Randomly putting object on body Touching body with object randomly	Using object against body randomly	Interacting with self
Trying to fix Correcting self Making alteration	Attempts correction	Problem solving
Moving between the door Circling the table Crawling from the table to the door	Moving between classroom equipment	Interacting with environment

The final core categories after the selective coding were identified as outlined in Table 9 below.

Table 9: Core categories

Facial expression • acknowledging sound • brief change in expression • constant • related to action	**Eye contact** • at own body part • into the distance • at the object • changing fleeting/focus • at one part of the object
Problem solving • attempts correction • repeatedly attempts incorrectly • stop and restart action • immediately corrects	**With peers** • brief contact • working alongside • giving and taking objects • notices
Body position • change in location • constant • returning to object • change in position • leaning towards/away • moving position or location with object(s)	**Selecting** • with adult support • given object • one object • from a range of objects • multiple related objects • multiple unrelated objects • the same object again

Vocalisation in relation to play • unrelated sounds • related words/phrases • repetition in sounds/words/phrases • unrelated words/phrases • sounds related to play	**Self** • repeated movement with body • uses object(s) against body randomly • touches, taps, flaps, bangs own body with hands • moving one or more body parts • body movement near and/or around object • uses object(s) against body
Two (or more) play objects • randomly uses two objects not related • uses two objects separately in each hand • attempts to combine two related objects • switches between related actions with related objects • completes a string of related actions with related objects • combines two related objects in the designed purpose • repeats action with two related objects • combines a range of related objects together • relates two non-related objects • combines two or more related objects with variation	**One play object** • uses part of the object • uses whole object • accidently touching object • using the object for the designed purpose • using object for the designed purpose in a different way • repeating same action or repeating variation • uses as designed on first attempt • switches between different actions • touching and manoeuvring object • attempting action with the object
Classroom • leaning body against classroom environment • repeating actions with environment • using one object to interact with classroom environment • touching classroom environment with hands • moving between classroom equipment • using two objects and interacts with classroom environment • using play object(s) randomly against classroom equipment	

5.7.3 Theoretical coding

The final stage involved theoretical coding and was a process of reviewing the connections and relationships between the substantive codes (Kenny & Fourie, 2015) and integrating the memos into a cohesive theory. This was a process of ensuring connections and relationships between the various core categories that had been developed through open coding and selective coding; it involved creating order between the data. Holton (2010, p. 36) has stated: "this sorting is conceptual sorting, not data sorting." The use of memos was pivotal during this process. Glaser (2013) discussed the process and concept of memoing as a private method to generate, collect and store concepts and ideas. He emphasised the uncertainty in the process and the limited guidance in the GT theory literature, advising that a unique style suiting the researcher be developed, and cautioning that "formal training to memo can easily kill autonomy and creativity" (Glaser, 2013, p. 6). Although Glaser (2013) claimed that memoing is a private affair for each person, it is for clarity that example memos are stated in Table 10 below.

Table 10: Examples of memos

Memo about the process Date: 9/6/2015 The process of doing line-by-line coding seems to be a strength and a weakness so far. It clearly breaks down the action but frequently a word is missed because it does not make sense. Is this part of the breaking down and analysing or am I missing something? Hopefully the next step in incident by incident will clear up any (felt) missed bits.
Memo about the concepts Date: 15/11/2015 If a child is using the object in their hands against their body how do we separate if the object is being used or if the body is being used against the body? I wonder if at this time that is not the focus. Is that related to intentions and not my focus here? Or is this the idea that play is not step by step and there is overlap?
Memo about selective coding Date: 3/9/2015 The phrase incorrect continues to present itself in my language. Who am I to decide if it is correct. The word needs to be removed and possibly replaced with non-traditional/alternative/other/different/designed purpose?

Through the process of memoing and constant comparison, the connections and relationships between the established categories were further scrutinised and placed into a visual diagram. The list of categories began to demonstrate how the ideas related to each other. The core areas were identified as:

1. Interacting with one play object
2. Interacting with two play objects
3. Interacting with self
4. Interacting with environment.

The other areas identified in Table 9 were considered as components that could each extend or develop further the play presented in the core areas. This was a process of using the

memos to consider how they relate and how they could be portrayed to others in a coherent format. Multiple attempts were created. For example, Appendix 14 demonstrates how the framework originally attempted to put the four main categories in the middle to show their importance, but that after further review it was recognised that the relationship with the other categories was not demonstrated by this model. Within the memos there were consistently notes made regarding how the subcategories can be applied to each of the four key areas, but this was not present in the earlier creations of the framework. Therefore, through the process of investigating the memos the functional play framework developed to ensure that the connections between the core and subcategories was clearly visible. Some of the additional key memos that were considered are identified below.

Table 11: Key memos considered in analysis

Key memos	**How the idea developed across the draft frameworks**
Multiple key areas and sub-areas might be portrayed during one observation	A cover sheet was added to the resource to clearly articulate this idea
Boundaries are often placed on play categories (e.g., exploratory play, followed by functional followed by symbolic)	The focus is placed on the object, environment or self. The categories at the bottom could be used during other stages of play
Interacting with self and environment is not often included as a play object	These two areas became key areas embedded within the idea of functional play
A child does not move through the stages systematically	Emphasised in introductory page

In addition, throughout this final step in the Study 2 data analysis of the observations was the process of making connections between the findings and the current literature. Holton (2010) discussed the importance of using a wide range of disciplines to ensure broad understanding and connections. This study examined literature from a range of fields for the literature review; therefore, when considering the theoretical connections there was a constant

consideration of the literature. However, when designing the framework, it was noted that the literature might add an area or category to make the framework more complete; this process was considered but was vetoed because it was not seen in the data collected and therefore should not be used. For example, the subcategory "vocalisation in relation to play" appears almost incomplete because it could have one more subheading that states "full sentences related to play", since this is what literature (Smith et al., 2011) suggests is the next stage in language development. However, this was not viewed in any of the observations of the children, so it was not included in the framework. Overall, the subcategories were placed in an order that supports the current knowledge on child development. It was consistently noted throughout the memoing process that there was much overlap with current knowledge on play. However, a number of key differences were also identified:

1. The number of codes that were focused on interacting with oneself
2. The number of codes related to interacting with the environment as a possible play object
3. The extensive number of subcategories that are related to the main functional play areas

The play framework that was developed through the play observation, and before including the teacher's interviews, can be seen below in Figure 10.

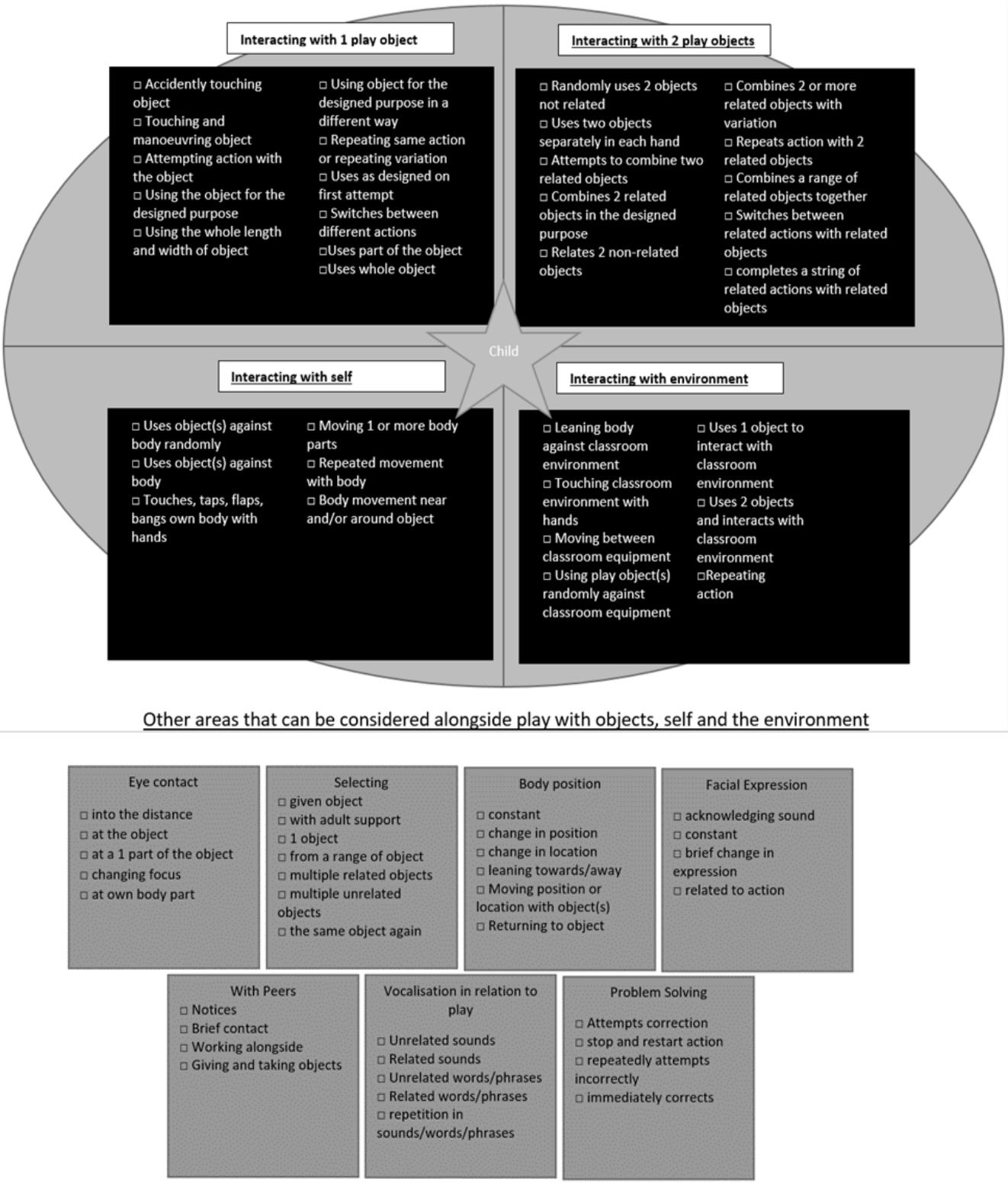

Figure 10: Draft functional play framework after observations

5.8 Method: Interviews with teachers

The overall aim of the interviews was to collect teachers views about functional play for children with autism and incorporate their perspective into the play framework. The interviews were viewed as a means to gather data through a conversation with the participants. Conversations in which teachers' views are elicited are seen as a valuable contribution to the study (Savin-Baden & Major, 2013). However, this is not to suggest an interview is simply a conversation (Denscombe, 2011) or similar to that of everyday conversations (Herzog et al., 2012); rather, it is a complex interaction in which the researcher seeks to illicit views to obtain deeper understanding. There is a clear focus on uncovering the participants' views and the interviewee is seen as an active, rather than passive, participant (Herzog et al., 2012). Therefore, the interviews construct the knowledge of play together through a verbal process of exploration of play skills for individual children. Since the research aimed to produce a framework that is usable by classroom teachers, it was vital to connect with teachers in order to create a tool that they can use in their classrooms to support children with autism and SLD.

5.8.1 Interview structure

A semi-structured interview was designed and piloted in Study 1 with a range of types of questions (Savin-Baden & Major, 2013) that would elicit stories and facts and encourage a deeper understanding about functional play for children with autism and SLD. The interview questions (See Appendix 8 for interview guide) were prepared in order to guide the conversation; moreover, additional probes were developed in Study 1 to investigate further into the detail (Roulston, 2010). Questions were designed to move from the general to the more specific (Savin-Baden & Major, 2013). There was also a blend of qualitative and quantitative style questions presented to each teacher. The interviews emphasised description, closed questions, objective facts and frequencies (quantitative) and open-ended responses, and there

was also a focus on individuality (qualitative) (Cohen et al., 2011). The questions were designed to encourage the teacher to describe the play of children with autism and SLD, as well as to allow multiple opportunities to explore the teachers' views about a child's functional play skills. As described in section 4.4, the key questions related to an investigation of teachers' perspectives on descriptions of play, play objects, actions with single or multiple objects, obtaining objects and vocalisation.

5.8.2 Interview process

The interviews were conducted with nine classroom teachers over the course of a three-day period with School B and a two-week period for School C. Arrangements were made with each teacher to conduct the interview during a convenient time and space suitable for the teacher (Roulston, 2010). Some teachers chose to complete the interview during their planning and preparation periods, while others opted to conduct the interviews before or after school. Herzog (2012) has emphasised the importance of the location of the interview, maintaining that it should not just be a logistical decision but should also contribute to the interview being a "socially constructed, negotiated event" (Herzog, 2012, p. 210). This concept was considered when teachers suggested a suitable time and location. Discussion was held regarding the content of the interviews and the strengths and weaknesses of various locations. One teacher elected to have the interview in the staff room and the other eight teachers held the interview in their classrooms. In addition, Roulston (2010) has emphasised the use of a place free from interruptions. However, this research recognises that "real world" research with busy teachers presents few opportunities for uninterrupted conversation. This was not seen as a limitation but simply as part of conducting school-based research. In addition, as Roulston (2010) noted, flexibility was needed to support the participants, so when interruptions occurred the interview was paused and then subsequently resumed with a summary of what had been stated previously.

In a busy school with children with complex needs and multiple support assistants assigned to work with each teacher, a flexible approach to the process was vital.

Each teacher also gave written consent (Appendix 11) for the use of audio recordings (Easyvoice recording android App) prior to the interview. It was acknowledged that people can feel uncomfortable when being recorded (Schostak, 2006), so further clarification was provided regarding the specific uses of the audio recordings and assurance given regarding confidentiality. This was to establish trust and comfort (Denscombe, 2011; Roulston, 2010) and to further establish a rapport (Savin-Baden & Major, 2013). Each interview began with a brief description of the study followed by one question regarding the interviewee's teaching background and one question regarding their interest in the research. This was followed by the interview questions relating to the play of each of the individual children involved in the observation. The interviews lasted an average of 25 minutes each; throughout them, there was a consistent check on equipment, comfort levels of the interviewee and understanding of the questions. Once all the questions had been addressed, the interviewee was provided with an opportunity to state any additional information. The interview was then ended and the researcher explained the next steps in the research process and potential future involvement.

5.8.3 Interview data analysis process

The first step in the data analysis process was to transcribe the data collected. Although it is described as "primarily a mechanical task", it was a vital first step in the analysis process (Breakwell, Smith, & Wright, 2012, p. 430). The process of transcribing the data involved using the software ExpressScribe to type verbatim both the researcher's and the participant's words from the audio recording. The process did not involve the inclusion of the paralinguistic, since the focus was on the content (Coolican, 2009) and word selection rather than on attitudes or intonations. Any interruptions from other staff or students were omitted but recognised.

The process of analysing the qualitative data presents a wide array of choice. The study aimed to identify, analyse and establish broad patterns or themes within the interview data (Braun & Clark, 2006). Therefore, this study thematically analysed the interview data. Thematic analysis can be adapted to multiple research aims and philosophical positions (Coolican, 2009). The flexibility presented by a thematic approach to analysis suggests it is not bounded by theoretical assumptions (Braun & Clark, 2006); therefore, it was suitable within the broader pragmatist approach of the research. The six-stage process of conducting the thematic analysis presented by Braun & Clark (2006) provides a succinct overview of the processes used to analyse the data:

1. Familiarising oneself with the data
2. Generating initial codes
3. Searching for themes
4. Reviewing themes
5. Defining and naming themes
6. Producing the report

The initial process of analysis of the interviews involved listening to each recording once after the final transcription to ensure accuracy (Braun and Clark, 2006). This allowed for the data to become familiar. The next stage began a process of reading and re-reading the interviews as a whole and beginning to generate initial codes by identifying key points. The subsequent stage involved the generation of initial codes, and a codebook (Guest, MacQueen, & Namey, 2012) was created for each term used. This involved an iterative process. The themes and codes initially identified were then combined to develop more general overarching themes. Again, an iterative approach of reviewing, consolidating and recoding to further develop the individual themes was adopted.

Throughout the analysis, an inductive approach was used that moved from the general to the specific, thereby using the data to develop the themes instead of relying on a preexisting set of criteria or categories to test or fit the data into. Furthermore, within this study the data collected from the teacher interviews was analysed at a semantic level by focusing only on the explicit content presented for interpretation, once again without a focus on any underlying assumptions. The aim of this study was to examine how teachers describe play and embed this into the play framework; therefore, it was presumed that the level of analysis was semantic rather than latent themes (Braun & Clark, 2006).

Overall, the interviews were conducted with a range of classroom teachers who elicited their views on functional play for individual children with autism and SLD. Their views were valued as a vital component of creating a practical and efficient tool. The process of analysing the interviews was an iterative process of identifying initial codes to develop key themes through thematic analysis. The key themes identified were used to inform the play framework.

5.9 Results: Interview

The data analysis of the interviews indicated nine key themes. Within this section, each key theme is discussed alongside specific example quotes taken from the transcription, with further commentary on how the themes relate to the functional play framework. Through the thematic analysis of the transcribed interviews, the following key themes were identified:

Table 12: Key themes from interview data

Theme 1: Object preference and limited details in the description
Theme 2: Repetitive language
Theme 3: Comparison to typically developing children
Theme 4: Location
Theme 5: Time spent engaged in play
Theme 6: Time spent engaged with others
Theme 7: Playability of the object
Theme 8: Limited reference to the functional play category
Theme 9: Language used by the children

5.9.1 Theme 1: Object preference and limited details in the description

When teachers were asked to describe the child's play, they all began with descriptions of the preferred object the child used and then proceeded to explain more generally what the child would do with the object. For example, Teacher 3 began by stating that "child x loves books and will go to the book shelf and select a book". Teacher 4 offered a similar starting point: "child x really likes the rice tray and always plays with the rice and pasta tray." Each teacher was clearly stating a preferred object or play action followed by a brief description. It can be seen in the latter example that the teacher generalised by stating "plays with", but did not detail what precisely they meant by that term. All interviewers were prompted for further details regarding the actions completed with the objects they mentioned. This led to some additional details in the use of the objects; however, the description of the child's play was almost always spoken about within a very broad overview containing generalised statements. For example, when prompted for further details about the play with rice and pasta, Teacher 4 continued by stating that "x plays by moving it around and dropping it in the tray, x really loves play with

pasta". Here, the teacher provided some additional details but reverted back to a general sense of enjoyment with minimal detail about what actions the child was conducting. The teachers were further prompted with "what other actions does the child complete with the pasta and rice?". The response was: "x picks it up and drops it, picks it up and drops it, loves it". From the prompts, some further detail was presented, but the language used might be considered as limited and without specific details. The prompting followed by minimal response in details occurred across all interviews.

In addition, it was identified that the description presented when describing play with non-traditional play objects (e.g., string, straw, paper, tissue) was also brief. The key terms mentioned were "fiddle" and "flap". When prompted for further description of the play, almost all the teachers proceeded by demonstrating with the nearest objects, or as Teacher 7 stated, "moving it back and forth". One teacher (Teacher 2) did provide greater depth in response by stating:

> Child X will use a fast repetitive and constant flicking motion to flap the object in the air, making a slight sound, but child x prefers to make this flapping motion with the object against another hard object. Like the table or wall. Sometimes the flapping motion is done with one object in each hand and then flapping both against each other making a noise, depending on the object of course.

Since each teacher stated the child's object preference, this could imply that some degree of object preference needs to be reflected in the play framework. Alternatively, it could imply that the framework needs to be versatile enough to use with a wide range of objects described by the teachers. Through the analysis, all teachers mentioned non-traditional play objects; therefore, the framework should be able to demonstrate non-traditional play objects and the variation that might come with these objects. In addition, because teachers presented

brief descriptions, this could further emphasise the need for the framework to support teachers' knowledge base regarding what the child can do with an object.

5.9.2 Theme 2: Repetitive language

Repetitive vocabulary to describe the play was frequently presented. Teachers repeated examples or restated ideas with examples of different objects. For example, Teacher 7 discussed that "child x loves to roll the cars on the table"; when prompted for further details about what he does when rolling the cars on the table, the teacher proceeded by explaining that "he rolls the cars on the table, all around the table, he rolls the cars on the table". When later prompted for further actions with other objects, the teacher responded in a similar way: "he will roll the 'trucks' on the table, all around." This repetition of the same language to describe a different object was a feature of almost every interview. The use of repetitive language might reflective the repetitive nature of the child's play; therefore, the framework needs to be able to demonstrate repetition from the children. Alternatively, this repetition of language could be due to the teachers' knowledge and observation skills, thereby presenting further evidence for the necessity of the play framework.

5.9.3 Theme 3: Comparison with typically developing children

Throughout the interviews, play was consistently described with reference to typical child development or with an age comparison to children with typical development. Although the focus was not to compare but to obtain a better understanding of play for children with autism and SLD, teachers repeatedly relied on their knowledge of typically developing children. Teacher 3 explained that child x "would never start pretending the pencil was an airplane or that the string was a snake, as they do in mainstream schools". Similarly, Teacher 7 stated that she was "working to get students to play but they would never play like typically developing

children, they are just different"; and Teacher 1 claimed that "child x doesn't play like a regular 6-year-old, it's more like a one-year-old plays". Although there was recognition that children with autism play differently (e.g., Teacher 7 above), the teachers' comments indicate that there was a recurring comparison to the play of typical development or in mainstream settings. This raises questions about teachers' knowledge about play for children with autism and further emphasises the need for a play framework that details children's play in very small steps in order to support teachers' understanding of play for children with autism and SLD. More specifically, the findings also suggest some recognition of how the play for children with autism connects to typically developing children is necessary in the framework.

5.9.4 Theme 4: Location

Although the focus of this study was on the play presented by children in the classroom, there was a constant comparison to play in different settings. Most frequently this was in comparison to play during outdoor periods; there were also some instances of comparison to play in different rooms in the school. Teachers began by describing a play action and then followed with comments like: "yet X won't do that during outside play" (Teacher 8); or "X definitely plays more outside" (Teacher 1); or "you should see X play in the sensory room" (Teacher 3). A further example can be seen in Teacher 2's discussion of how play in the music room is different to play in the classroom:

> X will not select any toys in the classroom but when he arrives in the music room he goes directly to the cupboard with the bells and selects two. Immediately shakes the bells and gives big smiles. X would never do that in our class. Even if the bells were in there. Maybe he feels safe in there [the music room].

Furthermore, there were multiple references to the location of the classroom in which the child engaged in play activities. Teacher 3 explained that child x "always sits in the corner with the massage toy" and Teacher 4 stated that "if he is on the floor he will use the car, but not at the table". This was further seen when teachers made reference to specific chairs, tables or designated work stations. Therefore, from the key findings, the framework might include some portion that reflects the variation in location or content specificity of actions, since each teacher made comments about different locations or comparisons to play in different locations.

5.9.5 Theme 5: Time spent engaged in play

Although there are diverse definitions or interpretations of engagement, almost all teachers discussed the amount of time the child spent engaged in an activity. This was discussed with reference to time measurement in seconds and minutes (e.g., Teacher 4 stated that "he will do this for about 30 seconds") but also with reference to a general activity or given sections of the day (e.g., Teacher 7 stated "throughout morning break"). Clarity about engagement was slightly more diverse, with some teachers implying that engagement was doing anything, including just holding an object/toy, while others implied engagement was completing actions or movement with an object. Non-engagement appeared to be discussed most frequently in relation to "wandering around the room" (Teacher 2, Teacher 4 and Teacher 9) or sitting, staring or doing nothing. Overall, there was a clear indication that teachers identified with a given amount of time doing an action when they discussed a child's play; therefore, this needs to be accounted for within the framework.

5.9.6 Theme 6: Time spent engaged with others

Besides the time spent engaging in play, there was also reference to engagement with other children and staff during play. This was most frequently discussed in relation to the distance

from the staff or another child. Teacher 9 stated: “child x will work alongside, a few feet away but not sitting directly next to another child.” The key phrase used was “work alongside”, with many teachers commenting that this was how the child played. Additional description included “near”, “in the same room”, and “next to”. There was less mention of the child completing an action with an adult, but Teacher 7 gave an example when commenting that “child x would take turns brushing the doll’s hair with an adult”. They did not suggest that the action was completed at the same time, but that there would be cooperation in taking turns to complete an action of the child’s suggestion. This was further implied by Teacher 3 who stated: “child x occasionally takes turns with child x when they use the massage toys, not sure I would state they are truly playing together, but it appears they are technically playing together.” In addition, there was also further prompting regarding how long the child would “work alongside” other staff and children that included brief periods of time, extended periods of time and only when continually prompted to remain. This was frequently connected to the idea of full or minimal prompting for engagement for a specific amount of time with the staff or other children. This suggests, therefore, that the framework should include an aspect of engagement with others (staff and children) for a specific amount of time and within a specific proximity.

5.9.7 Theme 7: Playability of the object

Extensive comments were made regarding the differences observed when the child was using different objects. Teachers focused on variation in actions depending on the object the child had access to, had selected or was given. Teacher 4 stated: “if he was given a doll he would just hold it or sit with the doll in front of him, but give him a train and that is a whole other story. He will then roll the train on the table and use it properly”. A further example is provided by Teacher 7 who stated that “child x will brush the toy cat’s hair all day but would never brush my hair or brush a doll’s hair”. Both teachers were suggesting that the actions are different

depending on the object being used. This idea was extended when Teacher 1 stated: “well, you can’t do that much with a single peg.” Similarly, Teacher 9 claimed that “toys, like a string of beads, just lend themselves to flapping against the table”. This could suggest that teachers see variations in the use of the toys and that some toys or objects have greater variation in use. Therefore, the framework should allow for and recognise that some toys have limitations and other play objects lend themselves to deeper or different engagement.

5.9.8 Theme 8: Limited reference to the functional play category

Within the interviews, there was limited reference to traditional terms such as exploratory play, functional play or symbolic play in order to identify the type of play. Multiple teachers made reference to symbolic play by using phrases such as “they can’t do symbolic play” (Teacher 5) or “x doesn’t do any pretend play” (Teacher 8). Almost all the teachers made some reference to symbolic or pretend play, while not always labelling it as symbolic play, instead using phrases related to “pretending”. It was noted that although the teachers knew the study was about functional play, only two teachers used that term. This has implications for the final framework, since it appears from this small sample group that teachers did not label the play according to specific categories. Some clarity over the term “functional play” might be presented within the framework, or consideration might be given to presenting the framework with a more general term such as “early play”.

5.9.9 Theme 9: Vocalisation used by the children during play

There were two key areas identified by the staff regarding the use of vocalisation, which included not only vocalised language but also the use of facial expressions. Most teachers discussed the use of non-language and occasional sounds. For example, Teacher 2 stated: “he makes wizzing sounds, like whooooooozz when he is flinging the beads above his head.” This

was reiterated by Teacher 6 who stated: “he makes sounds but I can’t tell if it is related to what he is doing.” Some teachers mentioned one-word utterances and short phrases or requests during free play. None of the teachers interviewed described full connections with the object that involved full use of sentences. Alongside these discussions was a common reference to the facial expressions children demonstrated during the play and specifically during the sounds or vocalisations created during play. Teachers emphasised that a child’s expression frequently remained constant but occasionally changed or appeared to have some connection to the object or play actions. Therefore, it is important for the framework to demonstrate the variety of possibilities within language and also to emphasise the expressions visible during play.

Overall the key themes identified by the teachers regarding the play of children with autism and SLD are identified in Figure 11 below. The key areas identified by the teachers were vocalisation, time, proximity, location, and play object. An “other” category ensures the inclusion of other aspects that came up but were less easy to categorise since they did not fit neatly into any other main finding. Alongside each main category are key concepts that were identified throughout the interviews. For example, under the key area of vocalisation, teachers discussed the connections that vocalisation had with the play, the length of the words used, and the sounds and expressions identified during play. Overall, each of these main areas has been mentioned above and incorporated into the play framework.

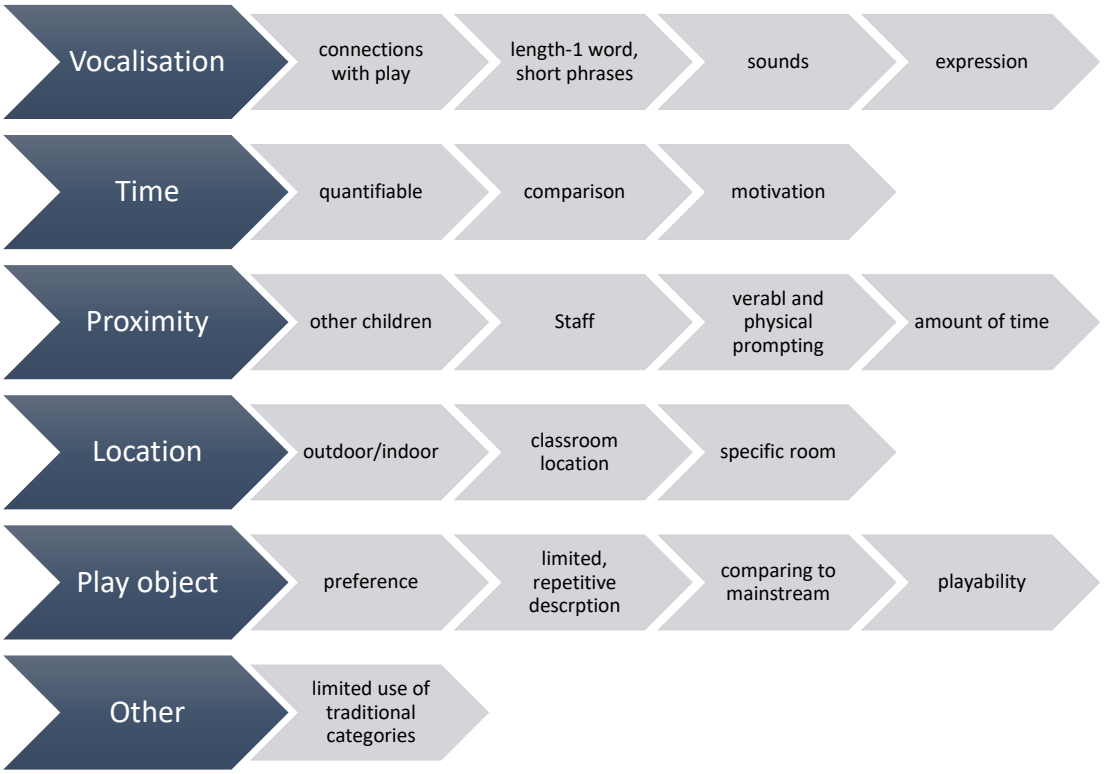

Figure 11: Key themes and related concepts identified in the interviews

5.10 Bringing the data together

5.10.1 Considering the observation data and interview data

Two sets of analysed data were available: the data from the interviews with the teachers; and the framework created from the observations. It was necessary to embed the key themes within the framework. The interview data was added to the observations, but priority was not given to one set of data over the other. Each key theme from the interviews was reviewed and compared against the current framework to identify if the theme was present. If themes were not present, then the framework was developed to ensure that the teachers' voice was fully added into the framework. It was ensured, therefore, that the observed characteristics were not altered. For example, teachers frequently made comparisons to typically developing children; however, this

was not present in the framework so it was added by creating a category that specifically related to comparison and included the comments or categories the teachers articulated. This process was repeated with each of the key themes identified during the interviews and is highlighted in purple in Figure 12 and Appendix 15. There were occurrences when the theme was already present; in those cases, no alteration was made to the framework. Appendix 15 presents the entire framework from the observations and interviews combined.

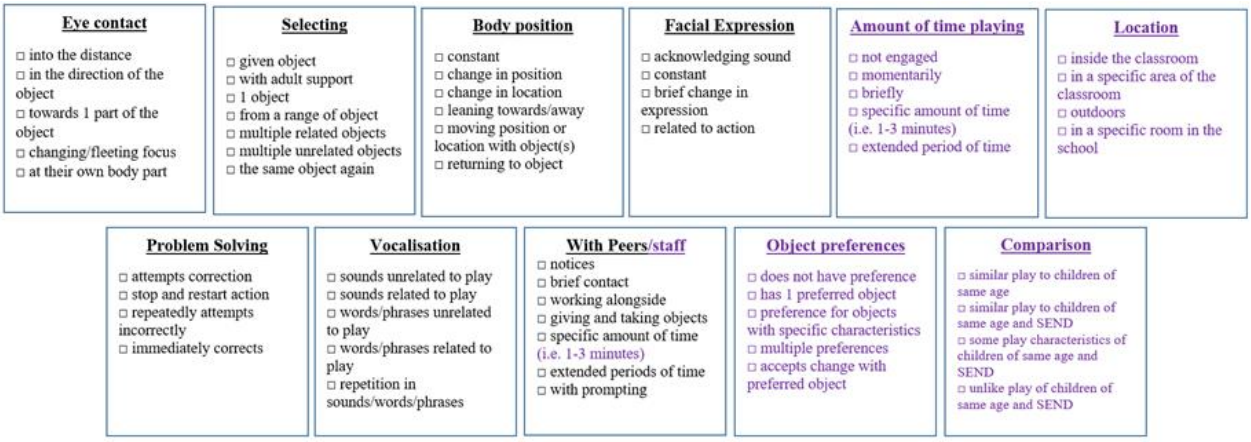

Figure 12: Key interview themes added to the framework

5.10.2 Considering the data from study 1

The final stage in Study 2 involved the process of considering the data collected in Study 1. This process was necessary to ensure a wide range of actions were considered. Although the process of analysis in Study 1 was not identical to that of Study 2, the data collected from the first study remained a valuable resource.

This process involved comparing the created frameworks. It is worth noting that almost all components of the Study 1 framework, although presented differently, were visible in the Study 2 framework. The key differences include the depth of information, the number of core areas and the use of examples. The focus in the Study 1 data appeared to be a separation between single and multiple play objects; however, in Study 2 this was further developed to include engagement with self and engagement with environment. The key area that was not

present in Study 2, but which was present in Study 1, was the extent to which examples were included. In Study 1, there was less depth and breadth of information presented, therefore leaving space for additional examples. This is not seen in the Study 2 framework and potentially needed to be addressed in order for there to be clarity in defining what is meant in the various categories. At this stage, the researcher decided that this would be an area that teachers might address within the final study. Instead of just adding in the examples and creating a larger document, the decision was made to wait and investigate should teachers identify this as a concern in Study 3.

The next stage in the development of a usable play framework that reflects the functional play actions of children with autism and SLD and the views of teachers was to return to the teachers to investigate their perspectives on the developed framework. In the next stage, Study 3 investigated the usability of the framework with a small group of teachers and then a final functional play framework was designed.

6. Chapter 6: Study 3

6.1 Introduction

Study 2 conducted observations and interviews to create a functional play framework. Study 3 aimed to further develop the play framework created in Study 2 by engaging with teachers to consider the usability and validity of the resource and elicit their recommendations. In order to have a resource that is usable by practitioners, the study provided the teachers with an opportunity to use the created framework for one month. After the trial period, interviews were conducted so that teachers could provide their views and opinions in order to co-construct the final play framework. Within this chapter, the design, methods, analysis and results will be presented. This is the final stage of the three identified stages of the research (Figure 4: Overview of research design).

6.2 Focus and rationale

Study 3 intended to build on the teachers' input in Study 2 by further examining their experience of using the functional play framework. In order for research to have an impact on the lives of children with autism, it is vital that conversations are held between those conducting research and those working with or supporting children with autism (Parsons et al., 2013). This will enable greater understanding and better outcomes (Parsons et al., 2013). Without a discussion of priorities, there is a potential that all intended outcomes will not be met (Pellicano, Dinsmore, & Charman, 2014b). Despite this, there is an evident gap between practitioners and researchers of autism (Parsons et al., 2013). Pellicano et al., (2014a)

have emphasised that practitioners are rarely involved in making decisions related to research and its application, with the result that there are difficulties in implementation for professionals. Research frequently only engages with the users during the dissemination of the results (Pellicano et al., 2014a) and many practitioners describe low levels of engagement with research (Carrington et al., 2016). Therefore, this study focused on collaborating with teachers to ensure their views directly informed the play framework. In short, the research aimed to bridge the gap between research and practice to create a useful resource (Boardman, Argüelles, Vaughn, Hughes, & Klingner, 2005).

Furthermore, social validation or "consumer satisfaction" is an area of research that is limited within autism research (Callahan, Henson, & Cowan, 2008, p. 678). The process of ensuring that the users of the resource are satisfied can support the implementation of the intervention or approach (Callahan et al., 2008). Although social validation does not guarantee a valid and reliable approach or intervention, it can support implementation. Without social validation of programmes, practitioners can be unaware of programmes or may continue to use programmes that are not evidence-based; it may also limit collaboration between parents and schools (Callahan et al., 2008). It is important to understand how practitioners use different approaches within the classroom (Stahmer et al., 2005) and this study fully supports the view that those involved in the study must see a practical application of the research (Pellicano et al., 2014a). It is also necessary to strengthen the ways that research is transferred to the everyday classroom (Parsons et al., 2013).

Considering these gaps in research and practice (Parsons et al., 2013) and the need for social validation (Callahan et al., 2008), this study aimed to engage fully with the practitioners to investigate and use their views in order to co-create a play framework. This study was not a test or a process of standardisation, but was another phase in the creation of a strong resource. By including those in the autism community throughout the study, there is a greater likelihood

that the resource will be usable. The research did not set out to create and impose a tool on practitioners, but rather to collaboratively design and co-construct a resource.

6.3 Interview

6.3.1 Design overview

Study 3 was designed to build on the observation and interview data collected and analysed in Study 2. A constructivist approach was adopted throughout this phase of the research. This approach is at the opposite end of the research continuum to that which was used in the observations. The observations in Study 2 aimed to objectively report play actions, whereas Study 3 aimed to collaboratively create knowledge about the play resource. This was not viewed as a competing approach but rather as part of a continuum of approaches that can be used together to add depth and breadth to understanding (Creswell & Clark, 2011; Teddlie & Tashakkori, 2009) (See Figure 3: Overview of the theoretical perspective). The knowledge in this study is created through the belief that each teacher has their own experience of using the resource and that the realities of the teacher are created and not simply discovered (Savin-Baden & Major, 2013). As Creswell & Clark (2011, p. 40) have argued, such an approach examines the experiences "from the bottom up", from individual perspectives to broad patterns and, ultimately, to broad understandings.

This study recognised the subjective nature of constructivism (Teddlie & Tashakkori, 2009) and the active subjectivity (Gubrium & Holstein, 2012) associated with viewing the interviews as a partnership. However, with an aim to improve and develop the resource it was necessary to inquire into personal perspectives and interpretations of the resource. Without such an inquiry, the resource, which had originally developed from objective observations and was then influenced by teacher interviews, might not be a usable resource in the classroom.

6.3.2 Timing and purpose of mixing approaches: Points of inference

As noted already, the study used MMR to bring together diverse viewpoints in order to build a strong study (Teddlie & Tashakkori, 2009). In Study 3, the data was brought together in the final stage after conducting the interviews and analysis. The data was considered alongside the data collected in Study 1 and Study 2, therefore creating another point of inference (Guest, 2012). The previously collected data was not considered throughout the analysis process, since Study 3 aimed to investigate teachers' unique perspectives on the resource. The data from the earlier stages was considered in the final stage of the study (see Figure 5: Points of inference across the study (points of inference are highlighted in red). The purpose of combining the data was to use the viewpoints to inform the resource and not simply to report the findings of the teachers' views on the resource. The findings are important to support social validation, but they were also valuable for redeveloping the resource based on teachers' perspectives, and were therefore significant as part of the aim to bridge the research gap and create a robust and influential resource.

6.3.3 Recruitment of teachers

A total of eight teachers opted to engage with the final stage of development of the play framework. Five teachers had been involved in the earlier stages of the research and three teachers were new to the research. This combination of teachers can be considered an asset since it ensured greater diversity among the participants in the study, but it was also recognised that views on the project can be seen differently based on the level of previous engagement. Seven teachers were female and one teacher was male.

Table 13: Characteristics of teachers in Study 3

	Number of years teaching	Research involvement
Teacher 10	5-10	Study 2 and 3
Teacher 11	10-15	Study 2 and 3
Teacher 12	Over 15 years	Study 3
Teacher 13	5-10	Study 2 and 3
Teacher 14	NQT	Study 2 and 3
Teacher 15	NQT	Study 3
Teacher 16	NQT	Study 3
Teacher 17	Over 15 years	Study 2 and 3

Purposive sampling was used to gather the sample of teachers to participate in the interviews (Cohen et al., 2011). The teachers involved in the study were from School B and School C, as described above in section 5.5.1. The researcher had previously gained consent to work in the schools and the schools each demonstrated a continued interest in the research. The teachers in the schools were informed about the research from one contact teacher at each school, both of whom had been involved in the research from the early stages of the data collection process. The teachers in the schools were informed through an information sheet and invitation from the researcher through the contact teachers. Participation was open to all teachers in both schools. However, the goal was to obtain in-depth discussions about the play framework rather than to undertake a process of testing or standardising the resource. Therefore, there was not a desire to have a large sample more suited to establishing frequencies (Cohen et al., 2011), but instead to identify a range of detailed views to contribute to the development of the play resource. The criteria for involvement was a commitment to attend an initial introductory meeting, to use the play framework over the course of one month, and to attend an interview to discuss their opinions and experiences of using the resource.

6.3.4 Interview structure

The overall design of the interview questions used a constructivist approach to create questions that would enable engagement in discussion regarding the individual teacher's experiences, opinions and recommendations. By designing an interview guide (Appendix 16) with multiple opportunities to provide judgements about the resource, allowance was made for diversity in responses and the development of a resource that would be usable by classroom teachers. The interviews in this study were intended to be collaborative rather than a process of transferral of knowledge from the interviewee to the researcher. The researcher aimed to establish a partnership in the creation of the play framework (Pellicano et al., 2014). The involvement of practitioners was not intended to be a "tick-box exercise", but to be a real and meaningful engagement about the play resource (Pellicano et al., 2014, p. 5). The focus was on establishing teachers' views and opinions, and on obtaining judgements and critiques (Savin-Baden & Major, 2013) about the play framework. This process was similar to Study 2's emphasis on collaborative engagement, but within Study 3 the focus moved away from eliciting stories and towards engaging in critical discussions about the resource.

A semi-structured interview was designed to guide the interview process. This was used as a prompt for engaging the participants in deeper discussion and was not used in a structured format. Using a structured format would have limited open dialogue, potentially leaving the strengths and weaknesses of the play resource unknown (Litchman, 2006). The aim was to encourage dialogue instead of retrieving specific "facts" (Coolican, 2009, p. 145). All teachers were asked the same questions, although variation occurred in the specific prompts presented to evoke deeper conversation and elicit teachers' perspectives (Bryman, 2012). This was not a process of remaining neutral, but instead involved "the interviewer [being] fully engaged in coproduction of accounts" (Gubrium & Holstein, 2012, p. 33). Although less structured approaches can be criticised for limited reliability and generalisation (Coolican, 2009), the

intention was to accept the subjectivity often associated with interviews as a strength of co-creating a usable resource (Gubrium & Holstein, 2012; Litchman, 2006). Through using a critical viewpoint and multiple interviews, the study collected practitioners' perspectives and understanding of the created framework. The questions were divided into three key areas: use and usability; reliability and validity; and overall recommendations. These broad areas ensured that the objectives of the study were reached, but they also allowed teachers multiple opportunities to share strengths and limitations.

6.3.4.1 Area 1: Use and usability of the framework

The first portion of the interview schedule focused on how teachers used the play resource and on its usability within the classroom. Considering one of the overall objectives was to provide teachers with a resource to measure and support play, it was vital that teachers could use the resource in the classroom context. Therefore, the questions in the early part of the interview were mainly descriptive or structural to generate an understanding (Savin-Baden & Major, 2013) of the teachers' use of the play resource in the classroom. Questions were created to identify diversity and frequency of using the tool. The first section also focused on the practicalities of the layout and design of the framework. Although each user might have a personal preference, the aim was to identify whether the selected layout was appropriate for classroom use and to seek recommendations from the teachers. Therefore, multiple questions were evaluative and asked for a judgement to be made (Savin-Baden & Major, 2013). Additionally, there were questions regarding the introductory page to find out if more, fewer or different details were needed.

6.3.4.2 Area 2: Reliability and validity of the framework

The next section of the interview schedule was designed to focus on the reliability and validity of the play framework from the viewpoint of the intended users of the resource. It was

necessary to ensure that the resource portrayed a wide range of play actions (Lehner, 1996) by children with autism and SLD and to verify that the observations conducted were valid and reliable. Teachers can be considered as knowledgeable about the play actions that children with autism present, so their views could build on the external validity and on how well the actions described in the framework are generalisable to other children with autism and SLD (Cohen et al., 2011). Additionally, the questions in the middle portion of the interview were designed to support content validity to verify that the study produced a resource that accurately represents play for children with autism (Teddlie & Tashakkori, 2009). Furthermore, by asking teachers about the play behaviours they are familiar with for children with autism, and hence adding viewpoints of actions observed, the reliability of the study was strengthened (Pellegrini, 2004). Specific questions investigated the ability of the resource to measure small increments of progress, since this was a common limitation identified in other play frameworks (Lifter et al., 2011).

6.3.4.3 Area 3: Recommendations and overall comments

The concluding portion of the interview was designed to investigate overall recommendations and comments about the play framework. One of the goals of the interviews was to specifically identify areas of the framework that could be further developed. Therefore, at the end of the interview, direct questions were put to the teachers to identify areas that could be added or removed. Instead of inferring what aspects teachers wanted to be developed or changed, the questions aimed for a direct answer. Additionally, teachers were asked how the play resource compared to other play resources that they had used. A direct comparison (Savin-Baden & Major, 2013) gives some insight into how the play framework could be used alongside other tools and was intended to evoke discussion regarding aspects that might be further developed based on the teachers' previous experiences of play resources. Final questions about their

overall views were sought to gain a more holistic understanding of the tool and to consider what they learned while using it.

6.3.5 Interview procedure

All eight teachers participated in an after-school meeting one month prior to the interviews to discuss the play framework. During this meeting, each teacher was introduced to the aim of the study and the prior steps that had been conducted to create the draft play framework. Teachers were provided with multiple copies of the play resource and were emailed a copy of the resource after the meeting. The researcher briefly reviewed the introductory guidance located on the first page of the play resource (Appendix 15). The teachers were then given a brief time to independently review the resource and ask any questions. Overall, the session was focused on providing basic guidance, but was not seen as a training session on play or the resource. The goal was to ensure that the resource could be used with limited training, so the session lasted only 20 minutes, including brief questions and review time.

Teachers were given one month to trial the play framework. Study 3 did not prescribe a required approach for using the resource, but instead allowed practitioners flexibility in implementation. As Parsons et al. (2013) have articulated, research often does not accommodate the need for flexibility in the classroom and frequently approaches are not carried out exactly as designed. Practitioners often merge or use aspects of resources to suit the needs or preferences of the child (Boardman et al., 2005; Stahmer et al., 2005). Teachers use resources and interventions in different ways for different children and this resourced aimed to be versatile for classroom application. It is necessary to respect and value the knowledge of practitioners in the way they implement approaches in the real-world classroom (Parsons et al., 2013). Therefore, in Study 3 it was regarded as vital to allow flexibility in implementing the resource so as to investigate how the teachers would use it. Generally, the current study gave

teachers the freedom to use the resource in a range of ways to examine the specific approaches and methods they used during its trial.

After a one-month trial period, the teachers were interviewed in order to inform the final development of the functional play framework. When the interview began, there were a range of "low-risk" (Savin-Baden & Major, 2013, p. 365) and unobtrusive questions used to welcome and relax the teachers. These included questions related to their classroom, their interest in play, general background information and details about the study (see Appendix 16). The reason for presenting a range of initial questions was to establish rapport (Litchman, 2006; Savin-Baden & Major, 2013), since the research was seeking the identification of strengths and weaknesses and there was a need for participants to feel they were able to give honest opinions.

Each question was presented to the teachers with additional response time provided through a natural conversational approach. The interviews lasted 30-40 minutes for each teacher and were conducted in the teachers' classrooms or in the staff room after school hours. The teachers were given the time and space to answer questions and the researcher further engaged in discussion through additional prompts and verification questions (Savin-Baden & Major, 2013). The focus was consistently to explore their individual views and opinions about the play framework. At the end of the interview, teachers were given another opportunity to state any additional information and were informed of the next steps in the research process. Additionally, each interview was recorded using the Tap media recording mobile phone application. This application was selected for ease of access and limited disruption to the natural conversation. Teachers were reassured about the purpose of the recording to ease any concerns.

6.3.6 Interview data analysis process

Thematic analysis was used to immerse oneself in the data and examine the experiences or opinions of the teachers while using the play resource. The data in the study were analysed in a similar process to the data in Study 2 (for further discussion see section 5.8.3). The process began by transcribing the data verbatim and then moved through an inductive process, from the general to the specific, to identify key themes, as suggested by Braun and Clark's (2006) six-stage process. This process allowed the data to be reviewed multiple times, themes to be identified and reviewed, and then key themes to be defined. It also allowed for flexibility yet clarity in the process of analysing the data (Braun & Clark, 2006). The data for this study was analysed based on each of the sub-sections of the interview questions at a semantic level (Braun & Clark, 2006), and then more broadly to identify the areas of development for the play framework.

6.3.7 Results: Teacher interviews

The results of the teacher interviews are presented based on the key themes identified through thematic analysis. Within each of the key themes, sample quotes from teachers are provided to further emphasise the key findings and present teachers' views regarding the limitations and recommendations within the play framework. This is followed by a discussion of the process of embedding the teachers' views into the play framework. The key themes identified from the analysis of the eight teacher interviews were:

- Diverse ways to use the framework
- The resource could be used across the school
- Valid and reliable framework that reflects the actions presented by children with autism and SLD
- Comprehensive and demonstrates small increments of progress in play

- Provides teachers with an opportunity for professional development

6.3.7.1 Diverse ways to use the framework

The responses relating to the ways that teachers used the resource were diverse, with six methods being identified and additional ideas put forth regarding future use of the resource. Teachers stated that they used the resource to identify baseline ability in play, to set targets for play, to plan activities, to identify tasks for TAs, for personal understanding and for leading free-play sessions. Teachers indicated that in future they would use the resource to manage support staff and write IEP targets.

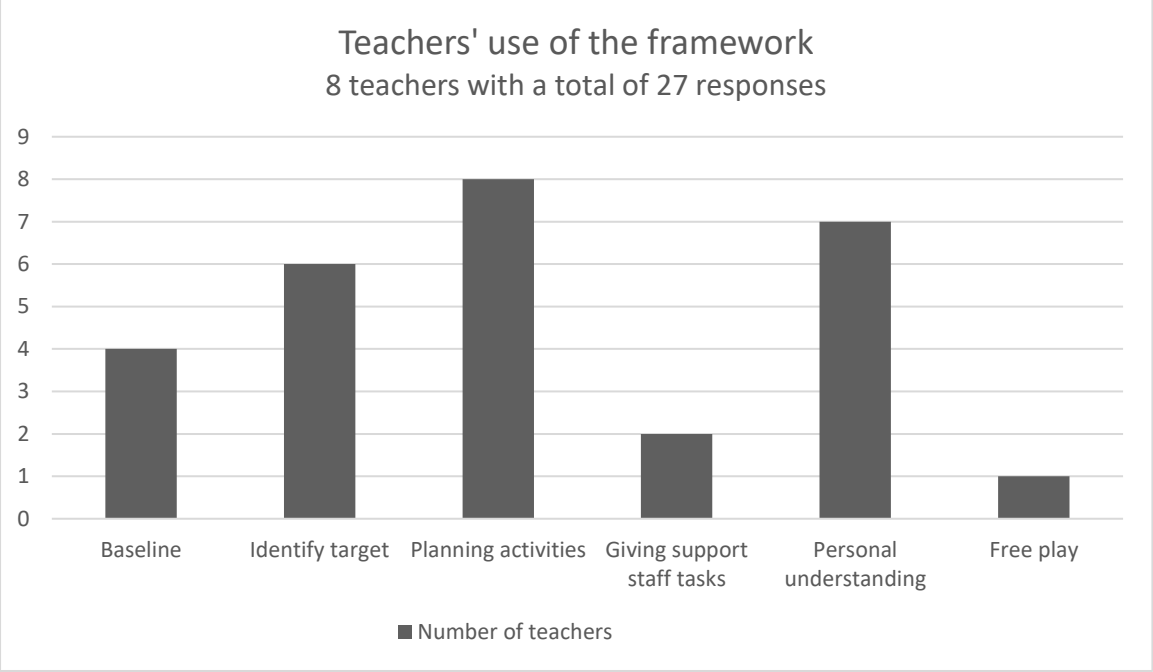

Figure 13: Teachers' use of the play framework

Almost all teachers identified that they used the resource in more than one manner. Eight teachers gave 27 responses for the ways that they used the resource. The methods teachers used with the resource are identified in Figure 13 above. This demonstrates that when teachers were given the freedom to use the resource in a manner that they saw fit, they actually identified

multiple uses related to supporting play. Furthermore, it is also important to note the amount of time teachers reported using the resource. The open-ended questions elicited comments ranging from those staff who used the resource multiple times across the day to the one teacher who said they used the resource "sporadically" (Teacher 17). The responses emphasised that the resource was used.

Beyond the approaches identified in Figure 13, almost all teachers explained that in future they would assign greater use of the resource to TAs and for developing future IEP targets. Teachers who had already used the resource with TAs suggested that it was easy for them to articulate what work to complete with a child during choice time or at points when the teacher was working on other tasks. Teachers further explained that managing TAs can be "challenging" (Teacher 16) and the detail provided on the play resource can help with effective management of staff. Teacher 15 detailed a scenario that involved a busy classroom with different support staff arriving on different days of the week. The teacher stated that in future they would "ensure all staff had been introduced to the play resource and then be able to use it to independently to select an appropriate play task for any child". The concept of ensuring that TAs were able to use the resource was repeatedly identified throughout the interviews.

Additionally, teachers also suggested that in future, during the next IEP phase, they would use the play framework to plan a play target. Although six teachers identified that they used the resource to plan targets, they did not specifically identify these as IEP targets. It was when teachers were prompted about how they would use it in future that six teachers explained that their children do not currently have play targets but that in future they would use the resource to plan these targets. Teacher 10 explained that some of their children have play targets, but that the targets were general and not as specific as the play framework. Teacher 17 described the importance of setting specific and achievable targets, but that they were "not exactly sure how to break down play, but [the resource] helps do that for me". The interviews

indicated, therefore, that teachers used the resource in different ways and could see potential for future use of the resource.

6.3.7.2 The resource could be used across the school

Teachers also suggested that the play resource could be used across the school, with particular emphasis on its potential within training sessions on play and for sharing information about the child's ability in the area of play. Teacher 16 explained that the school was currently in the process of selecting a new school-wide assessment measure, with a move away from Bsquared to a new programme that allows for any assessment framework to be used across the school. Teacher 5 added that the resource could "easily be added into our new process to measure play skills for all children in the school". Teacher 14 commented that "we could use this when they come in [to the school] and they complete it in stages throughout the school" and that the resource could be included in student portfolios or could be sent to parents to support their knowledge about play. Additional suggestions included training sessions to teach about play skills. Teacher 10 emphasised: "I could use this to do an afternoon training session for support staff or even parents." It was clear that teachers believed the resource could be used in multiple ways across the school. Overall, there was a focus on the diversity and individual variation of how teachers could use the resource, but also on the potential for the resource to be used across the school in diverse formats.

6.3.7.3 Valid and reliable framework that reflects the actions of children with autism and SLD

Another important theme that emerged from the interviews was teachers' view that the framework was a valid and reliable reflection of the play actions of children with autism and SLD. The teachers were clear that while using the resource they did not encounter play actions that were outside the scope of the resource when observing children engaging in play. For

example, Teacher 11 stated: “This really looks at play holistically, I mean all areas are really covered, so much potential areas for the child to develop their play but also areas that sit within play, expressions, prompting, speaking, preference, it’s all there.” Additionally, Teacher 15 stated: “I think the good thing about it is that the language explains what the children actually do rather than, sometimes you get forms that use words you have to look up cause you’re not really sure, but that [the resource] is actually describing things you see and potentially want to do, it’s quite familiar, especially if you have worked with these children before.” There were multiple points made that reflected the view that the actions in the resource reflected the actions of children with autism. As Teacher 16 articulated: “I mean this looks like it was made for children with autism, there is not a focus on pretend play, lots of the tools focus on pretend play and these kids are not pretending yet.” Similarly, Teacher 17 stated that the resource “accepts the repetitive nature of play for child with autism, this just looks more realistic”. Or as Teacher 10 claimed simply, “it’s just what they [children with autism] do”. Teachers repeatedly stated that the resource accurately describes play for children with autism and SLD.

However, it was also acknowledged that when a child completed an action that more closely resembled symbolic play or early exploratory play, then this was not accounted for in the resource. Although teachers indicated that they realised this was a resource for functional play, they also further commented that this amount of detail was needed for all stages of play. Teacher 17 specifically stated: “because of the fluidity of play, a similar thing for symbolic play or early play is really needed.” This was further identified by Teacher 12: “I get that this is for functional play, but kids demonstrate so many different types of play at once, I want this for all play.” Overall, all teachers positively responded with confirmation that they had observed similar play actions by children with autism

6.3.7.4 Demonstrates small increments of progress and provides evidence in play skills

Another strength of the play resource identified by teachers was that it allowed them to identify small increments of progress in play skills. Teachers repeatedly identified that when using the play resource they could easily demonstrate progress in the area of play, and also in other associated areas such as those identified at the bottom portion of the resource (e.g., eye contact, body position, problem solving, preferences). Teachers made reference to "small chunks", "baby steps", "extensive levels", and "small stages" and "small increments". Teacher 15 stated that "I think this is broken down extensively and if you start breaking it down more you will need several pages and then you start to lose the play and it would then be more mechanical or focused on motor skills instead of play skills". This suggested that the resource was comprehensive but could also specifically demonstrate small steps in play progress.

Alongside the teachers' belief that they could use the resource to demonstrate progress, three teachers mentioned that actual progress was achieved with three specific children over the course of the one-month trial. These three teachers were the same teachers who identified that they used the resource to baseline the children's current play ability. Teacher 11 stated: "it was great to actually use the environment to engage him in object play, he would only stand in one space in the room touching nearby objects but instead we were able to get him to move around the room by going from one object to the next, like, back and forth across wider spaces." A similar example of progress was expressed by Teacher 13, who stated that "last month he was just tapping parts of the object, like the edge of a book, or the side of a car but we focused on encouraging him to touch the whole object and he is now more inclined to do this, small I know, but progress, right". All three teachers claimed that the framework allowed them to demonstrate small steps in achievements.

Teachers also identified that because the resource could demonstrate children's progress they would now have the evidence to show that progress. Six teachers mentioned the

evidence required by Ofsted, but four teachers also mentioned the framework as evidence for annual review meetings. Teacher 12 commented that they would be able to "directly show parents what areas they were working on and within a year there was a greater possibility that the child would accomplish something on the resource". Teacher 14 further noted that parents frequently have concerns about their child's play "because they can't just leave them and get on with tea because they can't just play". Additionally, the discussions reflected teachers' concerns about accountability for demonstrating progress to Ofsted and their view that school-wide use of the resource could provide further evidence. Teachers explained that they are "expected to demonstrate progress and sometimes it can be difficult to show the little steps in progress for all areas of the curriculum" (Teacher 16). Furthermore, Teacher 14 claimed that the resource allows for positive reflection about the small steps of progression in play and discussed how using the resource allowed them to focus more on "what the children can do instead of focusing on what they can't do, to be positive about these little accomplishments that they achieve".

The teachers stated that they could demonstrate progress and provide evidence but they also presented this in a thankful and grateful manner. There was repeated use of language that expressed a sense of gratitude; all the teachers expressed gratitude for the production of a resource that can show small increments of progress in the area of play. Teacher 10 explained that parents of children with autism often comment on their child's limited interest in play and stated: "with this resource I can show them that I am working to help their child engage with objects. I am just thankful I have this now, it helps, really it does." Teacher 16 simply commented: "thank you, I feel like I am armed for Ofsted." Although the teachers were light-heartedly expressing their views, there was a constant and grateful reference to the ability of the resource to demonstrate and record small increments of progress.

6.3.7.5 Provides teachers with an opportunity for professional development

Overall, all teachers expressed a positive response to using the play resource, using terms that included “informative”, “excellent”, “useful”, “positive” and “practical”. In addition, they all indicated that they had learned more about functional play from using the resource. They stated that by using the framework and focusing on one type of play they understood how it could be broken down further. Teacher 12 said: “although I break down tasks all day, how to put on a coat, how to pick up a fork, every step for these kids is about breaking it down, it is helpful to have a resource for play that shows me how to do that.” A few teachers stated how the resource helps to fill a gap in their own knowledge surrounding play. Teacher 17 explicitly explained how during their own training at university they did not have any early years play training, so their knowledge in the area was limited and driven by their own research. Furthermore, several teachers described how they frequently focus on social play, but that after spending time focusing on functional play they could further appreciate the complexity and diverse stages of play. Teacher 14’s description of engagement with the resource exemplifies the general theme that suggests teachers learned about play from the framework:

> I have learned a lot through being involved in this whole research project, but I can honestly say I know so much more about functional play from this framework. When this first started I had a typical assumption that it might just be another checklist, but it’s not. My understanding of play and the smaller components and diverse areas that I can work on during play has grown. I really think this will help others learn about functional play. It’s like play CPD [continuing professional development] on a page.

Teachers also acknowledged that the play framework provided greater understanding of play than the current resource they were using. Although many teachers had not used other play resources, there was acknowledgment of teachers’ use of Bsquared and three teachers had

used a checklist created by an unidentified author. Teacher 13 articulated that "the assessment tools we use never really focus on reviewing the play skills, but instead play is occasionally assessed as part of other measurement tools; this, right here [the framework] helps me to really understand play". Some teachers identified that they had used a checklist-style play assessment measure, but that it lacked depth, whereas from the functional play framework they could understand what play skills are a part of functional play. Overall, the teachers generally suggested that the resource supports opportunities for CPD for play, and more so than other resources they identified.

6.3.7.6 Recommendations

In addition to a discussion of the use, usability and reliability, and validity of the resource, the teachers were also specifically asked to identify the limitations and recommendations related to using the resource in order to further develop it. Teachers were typically not forthcoming with ideas about how the play resource could be improved; however, with persistent prompting and discussion, additional limitations and recommendations regarding the usability of the resource were identified. Teachers identified three key areas:

- Variation in layout is needed
- Guidance on introduction could be developed
- The concept of enjoyment needed to be included

6.3.7.6.1 Variation in layout is needed

Teachers identified that the resource was easy to follow, with comments such as "I had no problems" (Teacher 12) or "very clear" (Teacher 10), with positive feedback on the layout being repeatedly stated. However, recommendations for improvements were also made, with diverse preferences regarding the layout of the content. Three teachers identified that the size of the font at the bottom section was a minor concern. Teachers 11 and 12 suggested the content

could be spread across more pages. Teacher 14 explained that a booklet or passport style resource with visual aids could be more easily accessible to all staff and possibly the children. However, two teachers also identified that one of the strengths was that the framework was concise and all on one page. Teacher 13 stated that "the layout of the resource is excellent, on one page and all the information is easily accessible". It was evident that teachers had personal preferences, but this diversity could be accommodated with greater flexibility in the layout or multiple versions of the same content.

6.3.7.6.2 Guidance on the introduction

There were recommendations from three teachers which suggested that additional guidance on the introductory page (Appendix 15) would make the resource more user friendly. The teachers implied that the introductory paged helped to remind them of what was discussed in the introductory session, but they took the view that further details would mean that others could use the framework with minimal support. Teacher 13 explained: "I can see there are brief examples, but some variety to the examples would be helpful to me and the support staff, it makes me more confident in how to use it. Also, I mean you helped us to understand the resource but if you were not here we might need a bit more guidance." Likewise, Teacher 17 stated that "a bit more detail in the introduction examples could help other users". Although this recommendation was noted by a few teachers, others did not raise concerns about the examples provided.

6.3.7.6.3 The concept of enjoyment

When teachers were prompted to identify any play areas within the functional play framework that were not present, most of them did not identify any additional aspects of play. However, after further prompting two teachers commented that the concept of enjoyment was not present in the resource. Teacher 14 stated: "What happened to enjoyment, isn't play meant to be fun?

I wonder if we could record their happiness or enjoyment of the actions they were doing." A similar comment was made by Teacher 12 who emphasised: "some children are just happy waving an object, I want to be able to show parents that the child is happy. I want to be able to show also that sometimes I have been able to help them from hating something to actually enjoying something. That's sometimes a huge accomplishment for me and the child." The concept of enjoyment could be connected to earlier comments in Study 2 regarding facial expressions, yet in Study 2 the emphasis from teachers was about the visual expression and not the inner disposition. The recognition from teachers that enjoyment was not present might be considered a limitation from completing the objective observations and could further be considered as a necessary component of the framework.

6.3.7.7 Additional recommendations

Generally, discussions focused on the positive response to the extensive detail and usability of the resource with its ability to show progress and the three key recommendations identified above. However, with further prompting for additional aspects to add and remove, almost every teacher identified at least one component. Each area is briefly noted in

Table 14 as there was minimal consistency in the areas identified, yet each is worth considering in the final creation of the play framework. Teachers were encouraged to give a response outside of those already presented within the early questions of the interview, although overlap can be detected with earlier comments.

Table 14: Recommendations of components to add or remove from the play framework

	Overall recommendation to add or remove from the taxonomy
Teacher 10	Remove comparison to mainstream children
Teacher 11	Add additional detail to the introduction page
Teacher 12	Add more examples
Teacher 13	Add more about interaction with staff
Teacher 14	Add measurement of enjoyment
Teacher 15	Add a larger size of font
Teacher 16	Create a multi-page document
Teacher 17	None as they provided everything they could already

6.4 Combining the interview findings with Study 1 and Study 2

The process of embedding the views of the teachers into the resource was completed by considering each of the key findings alongside each of the recommendations from the interviews. Each point was considered individually and alternative ideas were also considered. Table 15 below demonstrates the key recommendations identified and actions completed with regard to alterations to the play framework.

Table 15: Recommendations and actions for developing the final play framework

Recommendations	**Actions completed**
Remove comparison to mainstream children	Remained in the resource
Add measurement of enjoyment	Added a category related to enjoyment
Add a larger size of font	Variation document created
Create a multi-page document	Variation document created
Add more about interaction with staff	Remained with one subcategory for interaction with peers and staff
Depth in examples of how to use the document	Additional detail added in introduction
Explain sub-sections	Mentioned in introductory document
Link to symbolic and exploratory play	Added to introduction
Further explanation of the four key sub-sections	Added to introduction
Difficult to encourage play with the environment	Remained and examples provided

The decision to alter the framework was made in conjunction with consideration of relevant research literature where possible. For example, only a few teachers acknowledged the need for adding enjoyment to the framework; however, there are extensive recommendations within the literature that also support this idea that play should involve enjoyment (Eberle, 2014; Johnson et al., 2005; Luckett et al., 2007; Rubin et al., 1983). Although there was recognition of facial expressions within the observations in Study 2, the concept of enjoyment was not yet fully accounted for in the framework. Enjoyment is a fundamental concept relating to play; it has, therefore, been added to the final play framework. Enjoyment was not initially embedded within the framework because the observations were focused on actions presented and not related to analysing beliefs, feelings or intentions. However, as the study progressed it was clear that the concept of enjoyment should be brought to the forefront of the resource as suggested by the teachers, since it is clearly presented within the literature.

Another example to further clarify the decision-making process is the recommendation to remove the comparison to typically developing children. One teacher recommended the removal of the comparison to other children; however, the decision was taken not to alter this component. This decision was made based on the extensive literature that suggests teachers' knowledge about children with additional needs can be limited and potentially needs further development (Lamb, 2009; Mintz & Wyse, 2015; O'Connor, Yasik, & Horner, 2016). This suggests that teachers are aware of child development for children with typical development and may be able to use their current understanding as a starting point for reflecting on play for children with autism. Additionally, teachers in Study 2 made consistent reference to typically developing children; it was clear, therefore, that in conversation this was the approach teachers used. Although it might be suggested from Teacher 1 that they might not particularly want to compare to typically developing children and it may be more helpful to view each child as

unique, when the teachers spoke about play in Study 2 there was repeated mention of typically developing children by way of comparison. Therefore, this aspect remained a part of the play framework.

Overall, a suggestion was not adopted simply because a teacher raised it. Each suggestion was considered alongside other teachers' views, both in Study 2 and in Study 3, and the current literature. Figure 14, below portrays the two-page final functional play framework and Appendix 17 demonstrates a variation of the document that is spread across three pages.

Functional Play Framework for Children with Autism and Severe Learning Difficulties

- This play framework has been developed based on the observation of play for pupils with autism and severe learning difficulties
- To encourage a comprehensive approach to functional play, try to consider all areas of the resources. Children might cover more than 1 area in each box or they might not cover any. The process might not be linear.
- There are 4 main areas: Play with 1 object, play with 2 (or more) objects, interacting with self (touch parts of the body), and interacting with the environment (such as large classroom equipment- walls, mirrors, chairs etc).
- Alongside these key areas there are other components that you might consider during play such as eye contact, the amount of time the child spends play, problem solving etc.
- You might consider using the resource to:
  - support your understanding of functional play for children with autism
  - vary the skills you encourage children to complete during their play
  - provide a baseline for play ability
  - plan individual targets for development in the area of play
  - assist in planning for teaching assistants
  - set IEP play targets
  - share evidence with parents/Ofsted
- Remember to consider the object the child is using. Some resources encourage deeper engagement or more actions than others. Also think about the type of toy or object: traditional toys (cars, blocks etc) or non-traditional object (string, tissue etc.).
- Functional play is defined here as 'using an object as its function denotes'. For example, using a toy train along a train track or rolling a car along the table. Some might also call this 'object play'. This is usually around the P4 level before children begin imaginative/pretend/symbolic play.

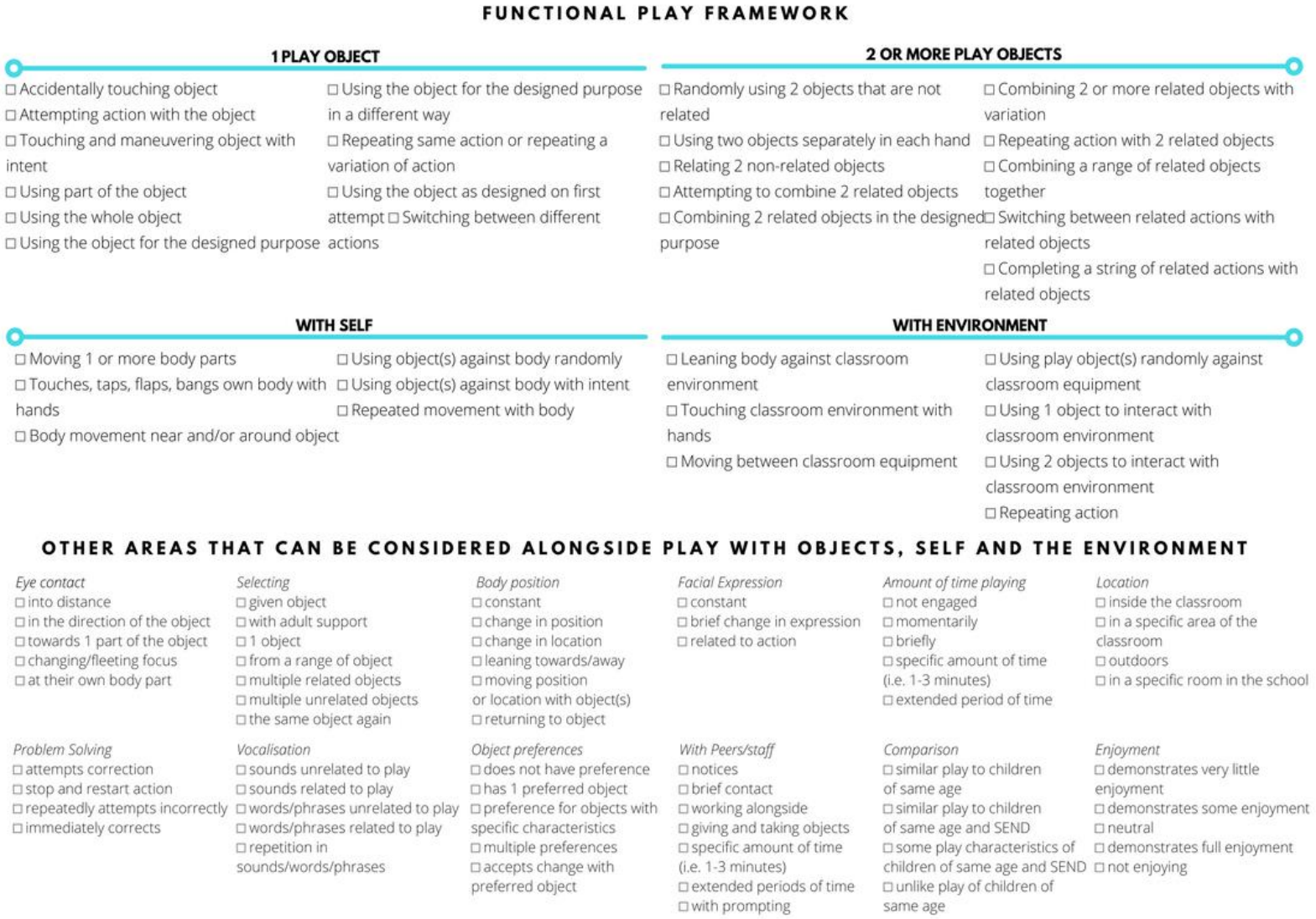

Figure 14: Final functional play framework

7. Chapter 7: Discussion

7.1 Introduction

This study has investigated the functional play actions presented by children with autism and SLD, created a valid, reliable and usable resource that extends the currently available play frameworks, and fully included teachers' perspectives across the development of the framework. This chapter begins with an overview of the entire study and then discusses the three research objectives, with consideration of the concerns identified in the pilot study and the literature. The three main research objectives were:

1. Describe and analyse the functional play actions completed by children aged 3-11 and diagnosed with a combination of autism and SLD
2. Create a framework for identifying and analysing functional play skills exhibited by children with autism and SLD
3. Collaborate with teachers to generate a functional play framework that enables them to support the development of functional play skills of children with autism and SLD.

7.1.1 Overview

Limitations highlighted in the literature review (Chapter 2), alongside findings of the initial pilot phase in this research, led to the formulation of an aim to examine the functional play presented by children with autism and SLD in order to create a play framework that supports functional play development in the classroom. Ideas considered within the literature included: the restricted play presented by children with autism (ICD-10; DSM-5); the variation in findings for specific play deficits (Dominguez et al., 2006; Jarrold, 2003; Libby et al., 1998;

Sigman & Ungerer, 1981; Thiemann-Bourque et al., 2012; Williams et al., 2001); and the lack of research and specificity in research on lower levels of play for children with autism and SLD (Imray & Hinchcliffe, 2014; Matson & Shoemaker, 2009; Porter, 2005). Study 1 emphasised generally that teachers did not have a method to baseline and then measure progress. It is necessary to first have a strong resource to baseline and then measure the play development of the child before and after the intervention (Lifter et al., 2005).

In order to create a play resource with extensive depth and detail that supports children with autism and SLD, the research first needed to objectively analyse and describe the functional play behaviours that children with autism and SLD present (Williams et al., 2001). Previous functional play categories are limited in reference to children with autism and SLD and have limited depth in the classifications of actions presented. A clear description of the functional play behaviours that children with autism and SLD present was reached through observation and discussed with teachers, in order to subsequently create a valid and usable functional play framework.

This study relied on observations of children with autism and SLD through grounded theory analysis of the observed play that children with autism present in natural play situations. It has not relied on observations of typically developing children, as do the POS (Rubin, 2001) or the Transdisciplinary Play Based Assessment (Linder, 2000), nor on the combinations of mixing and matching frameworks (Naber et al., 2008). Additionally, observations were conducted in natural free-play sessions within primary classrooms, rather than from contrived play situations (Ungerer & Sigman, 1981). Furthermore, this study has not relied solely on observations; the observations have been further informed by the descriptions of functional play by the professionals who have daily interaction with children with autism.

After creating the initial play framework (Appendix 15), the researcher worked in collaboration with teachers, through the use of interviews, to further develop that framework.

It was found that the framework is a usable resource that can identify and measure small increments in progress, and can support target setting, classroom management and continuing professional development. Overall, this discussion will argue that the resource reflects the small steps in play of children with autism and SLD and is a valid and reliable resource that teachers can use to support play.

7.2 Objective 1: Describe and analyse the functional play actions completed by children aged 3-11 and diagnosed with a combination of autism and SLD

The two key findings from objective 1 were:

- Functional play is more complex than simply using an object as its function denotes
- Teachers' perspectives on play demonstrate further the complexities and diverse components associated with functional play

The results indicate that functional play is more complex than is typically defined or described (Lifter, 2008; Ungerer & Sigman, 1981; Williams, 2003); therefore, a detailed description of the functional play behaviours identified in the observations and discussions with teachers will be examined. The discussion of Objective 1 continues with a descriptive account of the play observed. This is characterised by a focus on the four main areas identified: interacting with one object; interacting with two (or more) objects; interacting with self; and interacting with the environment (see Appendix 18).

Historically, there has been an ongoing attempt to clarify the organisation and structure of play for all children (Lifter, 2000; Nicolich, 1977; Piaget, 1962; Uzgiris & Hunt, 1975; Williams et al., 2001). Williams (2003) specifically emphasises the gap in our knowledge regarding the content and structure of play for children with autism. Previous research has often focused on exploring the frequency and diversity of play acts (Dominguez et al., 2006; Libby

et al., 1998; Williams et al., 2001) in comparison to children with typical development or developmental disabilities. This study does not contest the depth or differences compared to children without a diagnosis, but instead acknowledges the need for a deeper understanding of the specific functional play actions children with autism do present (Lifter et al., 2011; Williams et al., 2001).

In order to describe the functional play of children with autism and SLD, this study conducted natural observations during the free-play periods of a total of 27 children (8 in Study 1, 19 in Study 2). In addition, the research conducted interviews with teachers to gain their perspective on the play that children with autism and SLD present. The results from the observations and interviews indicate a wide range of specific actions that could be identified within the play that children with autism present. The functional play presented during the observations was multi-faceted and it became evident that functional play for children with autism could no longer just be defined as simply "using an object as its function denotes" (Libby et al., 1998, p. 487). This phrase or frequently used definition simplifies what appears to be a complex and sophisticated process that embodies multiple components. Teachers' perspectives brought additional depth to the understanding by establishing components of functional play that they view during play in their classrooms.

7.2.1 Description of the four main areas of functional play identified

The results from the observations identified four main areas of functional play: play with one object; play with two (or more) objects; play with self; and play with the environment. This differentiation challenges the assumptions within the literature that presumes functional play is limited to play with traditional one- and two-play objects. The research overwhelmingly implies that functional play relates only to using one object as its function denotes (Baron-Cohen, 1987; Holmes & Willoughby, 2005; Libby et al., 1998). Occasionally this is

differentiated into recognition of combining objects (Lifter, 2008; Williams et al., 2001). For example, Williams et al. (2001, p. 71) specifically recognised the processes of combining two objects under "simple functional play" and additionally within "elaborated functional play" by mentioning "two or more objects appropriately together". This is not a discrete and separate recognition by Williams et al. (2001), but within each category there was identification that the object is used alongside or in conjunction with potentially related objects. Williams et al. (2001) provided a definition and examples of the movement expected within this category, but from the results of this study greater specificity has been identified within and around the movement of using one or two objects as their function denotes. Additionally, it was identified that the children used themselves as a play object, as well as their environment, neither of which were identified by Williams et al.'s (2001) functional play framework.

Results from the current study were more similar to the play categories presented in the DPA (Lifter, 2008). Lifter (2008) presented a range of categories that could be considered functional play and therefore some similarities to the observed play action with one and two (or more) play objects, but again without recognition that functional play related to one's self or the environment. Both studies (Lifter, 2008; Williams et al., 2001) do provide brief recognition of interaction with one and two objects during functional play; however, the present study identified even smaller components that were observed in play.

Potential reasons for the difference in results could be because Lifter (2008) used 14 children with typical development and then applied the results to the literature for children with developmental disabilities, whereas the grounded theory approach to the analysis used in this study ensured the results focused specifically on the observed behaviours of children with autism and SLD. This builds upon Williams et al.'s (2001) work, which observed children with autism but was focused on comparing the play of children with autism to the play of children without a diagnosis, rather than focusing solely on the behaviours of the former.

7.2.1.1 Interacting with one and two (or more) objects

The category of "interacting with one object" consisted of actions related to behaviours observed with one object, such as a traditional toy (e.g., a toy car) or a non-traditional play object (e.g., a piece of string). "Interacting with two (or more) objects" encompassed actions presented when children demonstrated engagement with two or more play objects that resembled having one object in each hand. The diversity of actions identified across the observations suggested ten further subcategories for interacting with one object and ten for interacting with two (or more) objects, which are outlined in Table 16 below.

Table 16: Descriptions of interacting with one- and two (or more)-play objects

Interacting with one object	**Interacting with two (or more) objects**
□ Accidently touching object □ Attempting action with the object □ Touching and manoeuvring object with intent □ Using part of the object □ Using the whole object □ Using the object for the designed purpose □ Using the object for the designed purpose in a different way □ Repeating same action or repeating a variation of action □ Using the object as designed on first attempt □ Switching between different actions	□ Randomly using two objects that are not related □ Using two objects separately in each hand □ Relating two non-related objects □ Attempting to combine two related objects □ Combining two related objects in the designed purpose □ Combining two or more related objects with variation □ Repeating action with two related objects □ Combining a range of related objects together □ Switching between related actions with related objects □ Completing a string of related actions with related objects

The subcategories suggest that the children presented a diverse range of actions related to using one and two (or more) objects. It was clear from the observations that when children interacted with an object there were diverse movements that they completed. For example, within the observations a child used different parts of the object during the different periods of the observations. Sometimes this related to using the whole object and sometimes this was just part of the object. An additional example of interacting with two objects would be when a child used an object such as a toy car. They used this object to spin the wheels and then they repeated this action with each wheel. Sometimes they would complete the action on the first attempt or occasionally they began switching between different actions, such as rubbing the wheel back and forth.

It is important to consider the difference between just defining an action as using it as its function denotes, or being more specific and stating that a child used part of the object on the first attempt in its designed manner followed by switching between two varying actions. The latter explanation of the child's actions demonstrates greater specificity than the definition that the child used the object as its function denotes. The developed framework also acknowledged "attempts" to complete an action with the object. A child might not use an object exactly in the designed manner, but by using this framework recognition can be given to the early stages of using the object as its function denotes. While there is evident overlap with Lifter's (2008) and Williams et.al.'s (2001) categories regarding the main heading of interacting with one object, this study provides extensive detail regarding the engagement with one or two objects, something which these authors did not do. The actions presented during the observations reveal a complex and dynamic set of actions in relation to the way the children engaged with one and two (or more) objects.

7.2.1.2 Interacting with self and the environment

Alongside interacting with one object and interacting with two (or more) objects, the observations identified play with the environment and play with self. These categories saw multiple actions related to the main subheading. Each category was further divided into six and seven subcategories, as outlined in Table 17 below.

Table 17: Descriptions of interacting with self and the environment

Interacting with self	**Interacting with the environment**
□ Moving one or more body parts □ Touches, taps, flaps, bangs own body with hands □ Body movement near and/or around object □ Using object(s) against body randomly □ Using object(s) against body with intent □ Repeated movement with body	□ Leaning body against classroom environment □ Touching classroom environment with hands □ Moving between classroom equipment □ Using play object(s) randomly against classroom equipment □ Using one object to interact with classroom environment □ Using two objects to interact with classroom environment □ Repeating action

The category identified as interacting with self demonstrates some relationship with the early predefined play measurement categories of Ungerer & Sigman (1981). Under the heading of functional play, they identify one category as self-directed, providing the example of brushing one's hair. Additionally, Lifter (2008) identified self within the play categories; however, this was only in relation to pretend actions and it did not recognise the numerous actions identified in the observations of the present research where the child used themselves as the play object. Multiple children completed actions that suggested that part of their body

might be the toy or play object; for example, tapping of fingers on different parts of the body and watching fingers in front of their face as they touched their fingers together. Additionally, children were observed using objects against their own body. For example, Child 10 is identified in a video holding a toy truck, and throughout the video he uses the truck against his body; at certain points, the child placed the truck on his foot, drove the truck across his stomach or placed the object inside his shirt. The child was using his own body as the other play object but not in an observable pretend manner. Using one's body as a play object was broken down into smaller components that were observed and related to using just the body, using the body alongside a play object, or repetition of actions. This greater specificity explained what type of self-directed actions were completed by the children, which is more detailed and complex than those actions captured under Ungerer & Sigman's (1981) single category of "self-directed". Additionally, it is evident that functional play can be directed at one's self and not specifically related only to pretend or symbolic play, as identified in the DPA (Lifter, 2008).

The observations highlighted the importance of the category "interacting with the environment", a category that does not currently feature in existing functional play categories. This category emphasises the relationship with the wider environment, such as chairs, walls, or classroom equipment. The observations demonstrated that children used large and small parts of the environment to interact or play with. One particular instance involved a child moving between different walls and completing a tapping action against the wall when they arrived at it. This action was repeated, and it is suggested that the child was using the wall as a play object. Another example consisted of a child passing a car under and over a large classroom table. A common example seen in multiple observations was a circular movement around a part of the classroom environment, such as a table; the observation suggested, therefore, that the table within the environment was the play object. Within play research, there is an emphasis on the importance of the play environment (Trudell, 2010), but reference is not

specifically identified within functional play frameworks to suggest children use the environment as a play object.

Overall, throughout all the four main categories and subcategories it could be argued that some actions or movement are not specifically functional play. This would depend on how an individual defined functional play; in this study, it is argued that one stage does not end and one stage begins (Johnson et al., 2005). Therefore, depending on the definitions presented, an overlap with exploratory play could clearly be claimed. It is suggested that these are the observed actions that were identified in the behaviours of those children working in and around the defined category of functional play, or in and around the P4 level. Therefore, the actions were seen as related to functional play and included as a component of the functional play framework.

It should also be clarified that a range of movements were identified when a child engaged with objects; however, this was not to suggest the individual children presented diversity in their play similar to other functional play studies (Ungerer & Sigman, 1981; Williams et al., 2001). Within this study, some children completed the same small action, such as using one part of an object for the entire portion of the filmed actions. The diversity of actions was identified collectively when the data was analysed together, where a range of movements occurred relating to how the children interacted with an object. The findings of the current study suggest that children with autism and SLD collectively present a complex series of observable functional play actions that can be captured within the four key areas identified.

7.2.2 Additional subcategories

From the observations of children and discussions with teachers who described the play for children with autism in Study 2 and Study 3, a total of 12 additional areas were identified as components that could be considered alongside play. Each of these can be related to one of the

four main categories. For example, a variety of different forms of eye contact were viewed throughout the observations: into the distance; at the object; at one part of the object; changing focus; and at their own body. Figure 15 demonstrates all the components, with the teacher's contributions identified in purple.

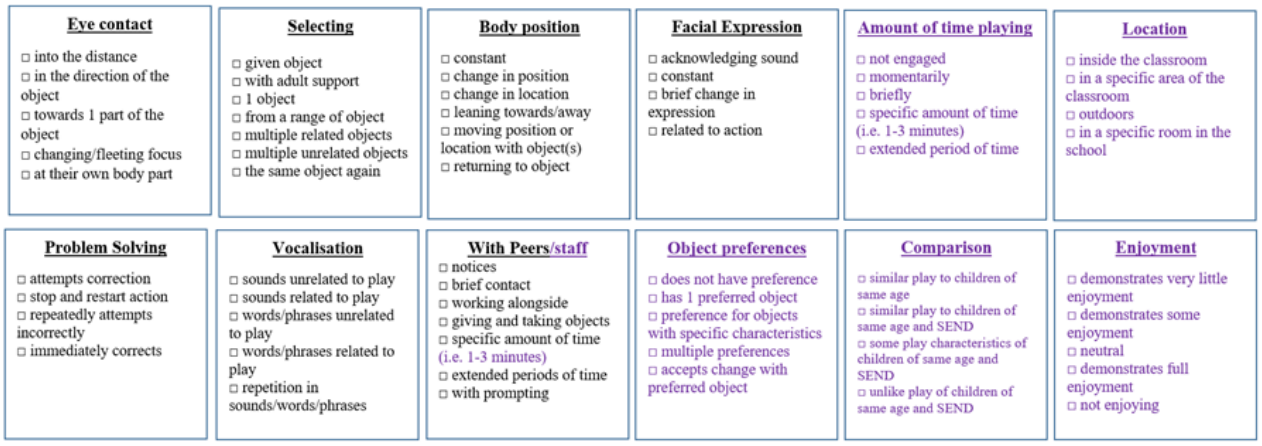

Figure 15: Additional subcategories

The additional categories presented along the bottom portion of the framework were created to demonstrate the range of additional features identified throughout the data collection. These features further highlight the complexity involved in examining functional play. There is very little recognition of the majority of the categories in the functional play literature. The individual components can be identified within separate investigations of the literature (e.g., Harrop et al., 2017, study on object preferences), but they are rarely related to literature on play or specifically on functional play. Williams et al. (2001) acknowledged vocalisation within their functional play categories, but the other areas such as body position, location, selecting or eye contact are not visible in the functional play categories for children with autism.

Each category is viewed as an important component of functional play; however, the next section will emphasise contributions from the teachers, which is another unique aspect of this study. As claimed earlier in the literature review, none of the studies reviewed included

the perspectives of users when creating the play categories or designing play assessment measures. Therefore, the viewpoints from the professionals are a valuable contribution of this study. The specific subcategories discussed by teachers and embedded into the framework were: object preference; repetition; comparison to typically developing children; and location and time spent playing. (See Figure 15 above.)

7.2.2.1 Object preference

Teachers identified and elaborated on the idea that children with autism present a preference for an object. They explained that the actions presented with an object could vary depending on the object the child was using, due to the child's preference for that object. The identification of object preference is presented across studies, but has not been specifically related to the creation of play frameworks. For example, Dominguez et al.'s (2006) study noted that children with autism have specific play preferences that are clearly different to comparison groups of children with typical development. Additionally, DSM-5 and ICD-11 both identify restrictive interest, which implies that children with autism may not have a wide range of interest and may be more inclined to have a preference. Although not completely unique to autism, this specific characteristic can be more pronounced in children with autism (Haney, 2013). Furthermore, the recognition of preference for objects is seen as a vital component of some interventions (e.g., CPRT). The use of an object that motivates a child can encourage greater involvement in activities (Stahmer et al., 2011).

Therefore, when teachers' views are considered alongside studies suggesting that children with autism have a preferred object, it was deemed necessary to include the category as a clear component of the functional play framework. The teachers discussed preferences under five key areas: children who did not have a preferred object; children with one preferred object; preference for objects with specific characteristics; preference, but for multiple objects;

and accepting of changes to preferred objects. Although this preference was not a concept identified or measured within the observations, it was a pronounced theme identified in the teacher interviews. It is likely that if the observations had been extended over a longer period of time, a preference for selected objects might have been more prevalent. However, to ascertain a preference would traditionally call for identification of an underlying feeling or emotion, and the observations were focused only on identifying observed behaviours.

7.2.2.2 Repetition

Alongside the identification that children have object preferences, teachers implied that children use repetitive play actions. Teachers described play actions and when asked for variations, the teachers frequently gave variation with a different object instead of variation in actions, possibly indicating that children with autism have a repetition in play. This is similar to the criteria for diagnosing autism that defines autism with repetition (DSM-5, ICD-10). The repetition in actions can be identified in the numerous studies that use measures, such as Repetitive Behavior Scale-Revised (Bodfish, Symons & Lewis, 2000), and that identify consistency across school and home for repetitive play actions (Schertz et al., 2016; Wolff et al., 2014). There is also a body of research that makes an attempt to remove, change, or alter repetitive behaviours within intervention approaches, such as Pivotal Response Treatment (Ventola et al., 2016) or the use of engagement with robots (Srinivasan, Park, Neelly, & Bhat, 2015). However, despite strong evidence that repetitive play behaviours are linked to autism, most play categories do not recognise this repetition. This study observed extensive repetition and teachers identified repetition in play; therefore, multiple points on the framework acknowledged the repetition that was apparent from the observations of the children and the discussions with the teachers.

Repetition can be viewed throughout the four main categories and throughout many of the additional components. A few examples of repetition include: repetition in vocalisation; repeatedly attempting problem solving; repeating movement with body; repeating actions with the environment; repeating actions with one and two objects. Although it is suggested here that repetition is most closely identified with repetition in play, it is also possible that teachers did not have the terminology to describe the play actions and that it was in fact their language that was repetitive. This was not specifically measured, so it remains a consideration and possibly a further rationale to ensure that the teachers could learn from the resource.

7.2.2.3 Comparison to typically developing children

In the interviews, teachers exhibited a reliance on their knowledge about play and development of typically developing children and not specifically about play for children with autism. Teacher 4 summed it up by stating that during their university training they were not prepared for working with children with SLD and so often "thinks with a mainstream hat on". This is similar to research that suggests NQTs report being less prepared to teach pupils with SEND (Ofsted, 2010; Pye, Stobart, Lindley, & Mori, 2016). Although frequently directed at new teachers, it is implied that some teachers had greater knowledge regarding pupils with typical development and that teachers might therefore feel more confident speaking in terms of typical development. Considering the concerns identified regarding SEND knowledge, it is not surprising that teachers put their content knowledge about typically developing children at the forefront or within their conversations. The teachers spoke about play compared to typically developing children in four ways: similar play to children of same age; similar play to children of same age and SEND; some play characteristics of children of same age and SEND; and unlike play of children of same age and SEND. This is not to suggest that the teachers in the study lacked knowledge about SEND, but that when conversing about play they had a tendency

to relate to concepts associated with typical child development or to compare play skills to those play skills of children with typical development. It is worth noting that one teacher recommended removing this category; however, due to the extensive number of examples comparing play to typically developing children, the category remained. Teachers might not want to compare children and would rather see them as unique individuals, but in discussions they presented a strong tendency to compare the play to children with mainstream development.

7.2.2.4 Location of play and the time spent engaged with others or with the play

A final area that was emphasised in the teacher interviews, and which is now identified as a component on the functional play framework, is the location of play and time spent engaged with play. Although some previous research on functional play has focused on measuring the amount of time children with autism spend in specific areas play (Dominguez et al., 2006; Naber et al., 2008; Williams et al., 2001), this is often compared to children with development disabilities or children with typical development, to measure differences or similarities in play. The time spent in play is not usually seen as a component of the functional play frameworks.

Throughout the collaboration, the teachers emphasised the amount of time a child would engage in play or playful activities. This ranged from a momentary encounter to extended periods of time. A numerical component was frequently used when discussing time and teachers suggested that they tried to engage the child with activities by extending the time frames during which the child would engage with a task. For example, Teacher 3 clarified that one of the children would use the toy shovel, but only for "1-2 minutes" before wanting to move to a different object. The use of time in the framework is important because teachers can demonstrate that a child has progressed by working with an object for a greater period of time

than previously identified. They might also be able to set a specific target for engagement with objects for a set amount of time.

Alongside the amount of time the child engaged with play, teachers also mentioned the different locations in which the child played or they compared the play in one location to another. Within the literature, the location of play is mentioned with reference to indoor and outdoor play (e.g., Machalicek et al., 2009) or in various rooms across the school (e.g., the sensory room: Brock, Dodds, Jarvis, & Olusoga, 2009), but is less frequently related to the variations in play in different locations in the classroom. Teachers often specified a precise location, for example in the sensory room or the canteen, but they also stated that the variation in play action could depend on the location within the classroom. For example, Teacher 6 described how some children would engage in "play with blocks at the table but never on the floor". Therefore, these descriptions were reflected in the framework, thereby providing an opportunity for teachers to encourage a child to engage in an activity in different locations for different amounts of time.

Overall, the behavioural observations and the teacher interviews demonstrated that functional play for children with autism is more complex than a single definition of using an object as its function denotes. The observations revealed that children with autism and SLD engage in diverse ways with single and multiple objects, and that they also use themselves and the environment as play objects. Each of these core categories further presents smaller and more specific observable actions. This extends the depth and breadth of knowledge regarding the content and structure of functional play for children with autism and SLD. Consideration of the knowledge and views of teachers ensures the valuable inclusion of professionals in the research process, which is often not traditionally incorporated within functional play research. Additionally, teachers' perspectives provided further subcategories that were not necessarily

visible in the objective observations, and so provided even greater depth in defining the play actions of children with autism and SLD.

7.3 Objective 2: Create a framework for identifying and analysing functional play skills exhibited by children with autism and SLD

Through a description of the actions identified during play observations, the first research objective argues for recognition of the complexity associated with functional play. The second research objective aimed to create a play framework that focused on functional play for children with autism (see final framework in Appendix 18). This section will outline how the framework that was created from the observations and teacher interviews extends the existing functional play frameworks. The most evident differences are the comprehensive specificity in depth and detail in the actions presented, the collaboration with professionals throughout the process of development, and the grounded theory approach to the creation of the resource. Additionally, the play framework also recognised the diversity of play objects, the transparency in development, the repetition in play actions, and a holistic approach to play, each of which extends the existing functional play resources.

7.3.1 Depth and details of play actions

The creation of the framework extended previous work by identifying and adding greater depth and specificity about functional play actions for children with autism and SLD. Considering that Williams et al.'s (2001) categories comprise some of the most detailed functional play categories affiliated with autism, this study goes extensively beyond their two key headings and five subheadings. Williams et al.'s (2001) categories differentiated between simple and elaborated play. As described in the above section, this study identified four key headings and an additional 12 categories within the play observations that can be used in conjunction with

functional play. It is not suggested here that more categories imply more depth, but rather that the focus on the behavioural actions presented during the observations and grounded theory analysis provided extensive opportunities to describe the smaller actions that were visible when children with autism played with objects. The addition of the teachers' perspectives broadened the scope of the observable actions and provided even greater detail. This specificity and depth in detail of observable actions is necessary to address concerns identified in the literature and in the pilot study regarding the limited ability in current assessment approaches to measure small steps in progress (Farrell, 2006; Imray & Hinchcliffe, 2012, 2014). The smaller, more defined categories allowed opportunities for an accurate portrayal of the play actions the children present, unlike the frequently used "best fit" (e.g., PIVATS, BSquared) approach to assessment measures for children with autism and SLD.

7.3.2 Collaboration with the teachers to create the framework

A key strength of the current study was the collaboration with teachers to create the framework. Most of the play categories developed within the literature are not created with input from the users. When users are included, this is frequently part of a process of involvement after the development of a resource; rarely are professionals consulted throughout the process (Pellicano et al., 2014a). Additionally, within the academic literature on functional play for children with autism, professionals are rarely involved in identifying or describing functional play for children with autism. For example, Ungerer & Sigman (1981) included the perspectives of the child's primary nurse and Thiemann-Bourque et al. (2012) sought parents' views; however, in both examples this was to measure the child's ability rather than specifically to develop the play categories.

The present study intentionally engaged with the teachers throughout. Teachers were included during Study 2 to inform the play framework with their perspectives and descriptions

of the play that children with autism present, and in Study 3 teachers provided opinions and recommendations that would examine the usability of the framework and contribute to the development of the resource. This study extends on the current research by adding the voice of the professionals throughout the development of the play framework. This resource goes beyond merely acknowledging that users require a specific set of skills (Taylor, Menarchek-Fetkovish & Day, 2000) or asking the professionals to measure the play after creating the framework (Thiemann-Bourque et al., 2012; Ungerer & Sigman, 1981), but has instead included them fully in the process of the original design. This view is consistent with current recommendations that engagement with those in the profession are important if the needs of children with autism are to be fully supported (Boardman et al., 2005; Parsons et al., 2013).

The nine key themes identified in Study 2 were fully embedded in the resource (see Appendix 15). This process did not see the views of teachers as a side component but rather as an equal and valuable part of the design process; the process therefore differed from those studies that only use the inductive analysis of observations (Williams, 2001), or that just use the literature (Barton, 2010; Casby, 2003b; Naber et al., 2008). The research enabled additional components of functional play to come to the forefront. For example, teachers commented on the play that occurred in different locations and for specific increments of time. These two concepts would not have been identified in the observations since the observations were conducted for a specific amount of time and were carried out only in the classroom. Therefore, the teachers' perspectives continued to extend the depth of detail and also addressed recommendations associated with including professionals in research.

7.3.3 Grounded theory approach to analysis of the play observations

This study used a grounded theory approach to analysis which provided an opportunity to stay as close as possible to the data (Holton, 2010) as well as to ensure that the categories were

developed directly from the actions presented by the children with autism. This is similar to the method used by Lifter (2000) with typically developing children, which specifically acknowledged the development of the framework without *a priori* developed categories. Throughout the examination of the currently available literature on the development of play categories, it was identified that play categories are frequently designed on the basis of typically developing children and are not specifically focused on observing the play of children with autism to create the resources or taxonomies (e.g., Developmental Play Scales (Westby, 2000) or DPA (Lifter, 2000)). The value of using a grounded theory analysis rather than previously identified categories was that it provided greater opportunities for the specific actions that children with autism present to be at the forefront of the framework.

Due to the choice of grounded theory analysis, the actions on the framework resemble the actions seen in the classroom. Multiple teachers stated that the resource reflected the actions presented by children with autism. Comments such as "this just looks more realistic", or "it's just what they [children with autism] do" reflect the belief that the play framework described the actions that the teachers view in children with autism and SLD in the classroom. If the study used the literature to lead the framework, the play actions of children with autism might not as closely have resembled the actions that teachers view. For example, Williams et al. (2001) used inductive analysis, but also claimed to have developed the framework based on previously defined categories, which included establishing an entire doll-based category that is not frequently a play action associated with children with autism (Dominguez et al., 2006; Harrop et al., 2017). This could be because Williams et al. (2001) happened to view a range of doll play in their inductive analysis or it could be because their framework tended to look to previously developed categories. Detailed descriptions of the processes are not included in the article, so a full conclusion cannot be drawn. Within the present study, putting the play of the child with autism at the forefront allowed for previously developed taxonomies to be expanded

and enabled the resource to truly reflect the characteristics of children with autism, instead of focusing on typically developing children first. This is not to say that the research literature should be ignored, because in this study teachers' views were interpreted and actioned in light of the literature during the final phase of the development of the framework.

7.3.4 Detailed description of how the resource was developed is provided

The processes of creating play resources are frequently limited in their discussion of how they were created, with the result that the reader or user is required simply to trust that the resource is suitable for a child. Teachers are expected to ensure personalised learning for the individual needs of children (DfE, 2015) and research frequently emphasises the need to examine what resources are suitable for interventions with particular groups of children (Lifter, 2000; Patten & Watson, 2011). When resources produced specifically for similar children are used, they have the potential to be more uniquely appropriate. However, if greater detail was provided about the development of the resource, teachers might be better placed to infer the suitability for the child with autism.

For example, the categories developed by Naber et al. (2008) and Rubin (2001) briefly identified the merging of previous categories, but the processes used to create the categories were often vague and had minimal detail. Early work by Libby et al. (1998) simply stated that the identified categories expanded on previous research. The DPA is one example of research or categories that present extensive detail regarding the process of developing the categories. The limited details could be attributed to limits on the length of journal articles or because research has a tendency to focus on the end result of measuring play ability or to emphasise standardisation instead of the process of creation. Therefore, clarity for the reader to make an informed choice regarding the suitability of the categories for specific children is limited.

Within this study, a detailed discussion is presented in Study 2 to explain the process of creating the resource and developing it into the final stages. The importance of showcasing and stating fully the process of creation allows for the scrutiny of the specific children used in the study, the process of development and the possible future applications in measuring play. This allows the reader or potential user of the resource to identify if the resource is specifically related to the children they are working with. The framework created in this research has attempted to provide transparency in the design, creation and development of the play framework; in doing so, it therefore extends current methods.

Additionally, this study aimed to ensure the process for creating the categories was not only transparent for the reader (similar to Lifter's (2000) work) but also endeavoured to ensure the processes of identifying the children in the study were identifiable by classroom teachers. It was recognised that some of the standardised measures are not always transferable to those without expertise in the given assessment measure. For example, Naber et al. (2008) identified that the cognitive level of the children was based on the Mullen Scales of Early Learning; however, this does not provide an understanding to most teachers who have never encountered this specific assessment process. In this study, the general ability of the children was depicted by P-scales. Teachers can immediately identify with the classification of specific P-scales and so share a common understanding of the cognitive abilities of the child (Imray & Hinchcliffe, 2012). Therefore, within this study teachers would be able to easily comprehend the children involved in the development of the framework and also the exact processes used to create the resource.

7.3.5 Recognition of the diversity of play objects

In this study, diverse play objects were identified during the interviews and observation, and are therefore visible in the created play framework. The research observed variations of play

with one object solely, play with two objects separately and together, play with self as the object, and play with the environment as the object. Play that used traditional toys such as cars and trains was observed and discussed by teachers, but so too was play that used non-traditional objects such as string or paper. Objects and their uses are diverse and the objects used during play can influence the play that a child presents. When more complex objects are used, then there is a possibility of more complex play (Johnson et al., 2005).

However, functional play categories or general play categories do not seem to recognise the influence or diversity of play objects. In Williams et al.'s (2001) or Lifter's (2000) play categories, the objects used are traditional toys. Some of the examples provided include tea pots, dolls, or baby bottles; however, these objects were not often identified in the observations or interviews within the current study. Libby et al.'s (1998) research does identify functional play with conventional objects and with junk objects, but there is no additional depth regarding what actions are completed at this stage. Therefore, this study extends the research by recognising the diversity of play objects through the four main categories (play with one object, two (or more), self, and environment) and with the recognition of traditional and non-traditional objects.

Alongside the diversity of play objects, it was acknowledged in the literature review that multiple play categories or coding schemes for measuring or identifying play for children with autism included a category related to interaction or play with dolls (Lifter, 2008; Sigman & Ungerer, 1981; Williams et al., 2001). Within the observations and discussions with the classroom teachers, there were no doll-related actions presented or acknowledged. Several rooms had dolls in the vicinity; however, play with dolls was not seen or described by any classroom teacher. That no doll-related play actions were observed suggests that a category dedicated to doll play was unnecessary for the play framework. Therefore, this study extended the current frameworks by remaining closest to the objects that were used in the play sessions.

7.3.6 Acknowledgement of repetition in play

The framework in the current study extended functional play categories by acknowledging repetition of play actions. Repetitive behaviour in play is a well-documented characteristic of play for children with autism (Schertz et al., 2016; Wolff et al., 2014), yet within the current available resources for functional play it appears to be absent. This may be because many frameworks or categories are created based on observations of typically developing children, who frequently do not present the same extensive repetition as children with autism, or because there is sometimes a desire to remove or change these repetitive behaviours (Ventola et al., 2016). Libby et al.'s (1998) categories are one of the few frameworks which acknowledge repetition within the subcategory identified as sensorimotor play; however, this is not directly related to functional play. Additionally, there are scales, such as the Repetitive Behavior Scale-Revised (Bodfish et al., 2000), which specifically focus on repetitive behaviours and provide practitioners and parents with an opportunity to closely scrutinise the particular repetitions in a child's actions. However, within the present study, instead of viewing the repetition separately, it is included in the play framework, thereby providing practitioners with a way to acknowledge the repetition.

Within the current study, each of the four main categories has a component of repetition. This allows teachers to accurately describe not only that a child is using an object as its function denotes but also that this is at a repetitive level. This is more specific than just describing the play as using objects as their function denotes. Additionally, as mentioned earlier (Section 5.9.2), teachers also described the play for children as repetitive. The teachers and observations identified repetition, so it is viewed as an important component that, although not visible in other frameworks, is included in the current framework.

7.3.7 Holistic approach

This study identified four main categories related to functional play, as well as additional components that can be examined alongside the main categories. In doing so, it created a more holistic approach to play. Consequently, the opportunities for teachers to baseline, measure or observe are extended due to the extensive number of categories and subcategories (see Appendix 18). Play taxonomies frequently examine all levels of play, from early exploratory play to symbolic play. For example Lifter (2008) and Libby et al. (1998) each present categories along a developmental continuum from early play to more advanced forms of play. This is repeated in commercially available resources, such as the Developmental Play Scale (Westby, 2000) which examines play from birth to five years. Other taxonomies, such as Williams et al.'s (2001) functional play categories, have focused specifically on one level or stage of play. Less frequently, frameworks examine play in context or alongside additional characteristics associated with play. These associated components, such as object preference or object selection, were identified within some research literature, but were not frequently associated with play directly (Dominguez et al., 2006; Hamm, Mistrett, & Ruffino, 2006).

Within the created framework of this study, a teacher would be able to set a play target as well as consider developing areas such as vocalisation or eye contact within the play, instead of just working on the functional play with one object. This makes the play framework a potentially holistic approach to the child and the play. Furthermore, when teachers provided feedback in Study 3, they noted the comprehensive nature of the framework as a strength of the study. The teachers emphasised the wide range of areas covered in the bottom portion of the resource, and commented that these additional areas provided for a more holistic approach. All the areas at the bottom portion can be incorporated during play and, importantly, they were all areas identified during functional play observations of the children. This suggests, therefore,

that teachers can engage in a holistic approach to examining a specific play category, unlike with other frameworks that appear to keep the associated concepts separate.

7.4 Objective 3: Collaborate with teachers to create a functional play framework to enable them to support the development of functional play skills of children with autism and SLD

The previous two sections have explored how the observations of children with autism and the interviews with teachers about functional play demonstrate a complex picture of play actions and have allowed for a resource to be created that extends on the current functional play categories. The final research objective of the study was to provide teachers with the framework and to collaborate with them to develop the resource. The inclusion of the teachers in this final step would ensure that the resource was a tool reflecting the views and opinions of the professionals who use the resource. In addition, to further co-create and develop the play resource, Study 3 provided the opportunity to explore teachers' views on the potential value and usability of the framework. Some of the key findings that emerged were:

- Teachers can use the framework to baseline play, set targets and measure (including evidence) play progression for children with autism and SLD.
- The framework supports classroom management and continuing professional development.

7.4.1 Teachers can use the framework to baseline play, set targets and measure (including evidence) play progression for children with autism and SLD

Interviews provided an opportunity for teachers to discuss how they used the play resource within the classroom. Notably, teachers stated they could baseline the child's current ability, either formally or informally, set and measure play targets and in future plan IEP play targets.

While Study 3 did not measure or test teachers' ability to baseline or set targets, it investigated their viewpoint on the ways that the resource could be used in an actual classroom. The research and design recognised that teachers frequently alter resources to make them fit their own children and personal preferences. Importantly, through a collaborative approach, this study investigated how the play resource worked in practice, something that many studies frequently overlook (Callahan et al., 2008).

The importance of setting targets suitable for the individual needs of the child is consistently stated in government guidance and academic literature (Bremner & Cartwright, 2004; DfE, 2015; Male, 2000; Waite et al., 2009). This suggests that baseline data is needed to set targets and measure progress (Lindsay & Lewis, 2003). Additionally, initial concerns identified in the pilot study related to the limited acknowledgement of play targets, limited resources for teachers to baseline play, and unclear notions of what play ability the child currently presented (see Rationale for change, section 4.7). This suggests, therefore, that before using the created framework limitations in the ability for teachers to set and measure targets were visible, yet after trialling the play framework teachers verbally emphasised the ability to set and measure play targets.

Teachers described incidents of using the framework to observe children with autism playing, and then being able to use the framework to negotiate a starting location and additional tasks to develop the child's skills. This was sometimes identified as a formal target, and at other times as an informal target for the immediate learning activity. This provided evidence of the potential value and usability of the resource. Teacher 13 provides an example of informal target setting:

> Well, what I did was watch the child play for a few minutes, looking at the play categories, and decide what they were doing during the play. So basically, I selected or ticked off what they were doing and then decided what

> they would do next. It was easy, and I now have ideas on what child x can work on in play.

An example of using the framework to more formally baseline and set a play target was given by Teacher 17:

> I used the framework to observe the child play during our morning play sessions. I watched for the entire 10-minute play break. I did this over a few days and then decided what they could and couldn't do. Once I could clearly see the child's current play skills, I marked the sheet with current and next skills for them to work on. I showed all my staff and then in the morning sessions child x would work on the selected target.

These contrasting examples of how teachers used the resource demonstrate the flexibility of use, but above all suggest that teachers were using the resource to identify what the child was currently able to do and then planning targets for the child based on their current ability instead of guessing what they need to be doing (as identified in Study 1). Guessing or using a "best fit" does not provide accuracy, whereas the detailed descriptions included in the created framework allow for greater accuracy to identify a starting point more precisely and then to set clear targets.

Furthermore, one of the predominant ideas put forward by teachers regarding targets specifically emphasised how in future they would like to use the resource to plan a specific IEP play target for the next academic year/annual review. In the pilot study, it was noted that when viewing the school and speaking to classroom teachers many did not have a specific target related to play, yet during the interviews many teachers identified that play would be on the next IEP. Therefore, the resource potentially moves the valuable concept of play to the forefront of supporting individual children.

One reason the resource might have encouraged teachers to set play targets is that the framework reflects the actions that the children present, so teachers can specifically observe the play of children and relate it to the actions on the framework. If teachers were to use resources such as the POS (Rubin, 2001), then they would be frequently confronted with play behaviours, such as symbolic play or doll play, that are rarely demonstrated in children with autism and SLD (Dominguez et al., 2006; Jarrold, 2003). The resource designed in this research was created based on observations of children with autism with a grounded theory approach; therefore, the resource reflects the actions of children with autism and potentially enables teachers to easily use it.

7.4.1.1 Measure small steps in progress

Measuring and assessing progress or learning for children with a SEND have consistently been a concern, and they continue to raise concerns, particularly for children working below the national curriculum (Rochford, 2016). One of the main concerns identified is the lack of specificity of the assessment measures, making it difficult to measure small increments of progress. This is frequently reiterated when specifically discussing children with several learning needs. The progress they present can be very small and the current measures to assess progress (P-levels) force some children to remain at the same level and potentially never progress (Imray & Hinchcliffe, 2014). Ensuring specificity in measures to assess the play of children with autism and SLD is vital in order to demonstrate and measure progress for this group of pupils (Lifter et al., 2005).

A key strength of the framework developed within this study is that all teachers stated that the resource could demonstrate small steps of progress for their pupils in the area of functional play. Importantly, they also discussed how it could demonstrate small steps in progress in other related areas, such as vocalisation and prompting, which can occur during

functional play. Existing frameworks that denote large and generalised categories (e.g., Libby et al., 1998) can provide an overview of ability, but they are not specific and so might not be suitable for developing targets and measuring progress (Lifter et al., 2005). The current framework supports engagement "in activities that are suitable to their individual needs" (Teacher 15).

Additionally, three teachers identified that they were able to demonstrate progress for a child for whom they had set a play target over the course of one month. They stated that they could set a target for the child and identify specifically how the child had progressed on the framework. Although the focus of the trial was not to clarify or measure if children made progress (since the focus was on continual development of the framework), this demonstrates an important potential outcome: it appears that the framework could be a useful resource to support the development and progression of individual children. This is similar to a study by Lifter et al. (2005) that provided the DPA to teachers to use with children with Pervasive Development Disorders and found that the use of small and specific play targets identified from category-based play measures (DPA) led to progress in the play of a small sample. Promising findings with the use of the DPA, which is currently one of the frameworks with the greatest specificity, suggests that the newly developed functional play framework has great potential. This research presented even greater depth in categories, with extensive specificity to encourage developments in play.

Next, it was important to consider the created resource alongside other resources used by the teachers. However, because the teachers claimed minimal engagement with other play resources, it is difficult to a draw a precise conclusion on the ability of the proposed resource to measure progress compared to other play resources from the perspectives of the teachers. There were multiple acknowledgements that indicated the resource was more specific than their current methods, but the emphasis was on how their current resources did not focus solely on

play. However, if the specificity of the resource is compared to other resources such as Bsquared or PIVATS, then there is a glaring difference in the depth presented (as discussed in section 7.2). This depth is potentially the reason why teachers all agreed that small increments of progress could be and were measured for children with autism and SLD.

One last point regarding the measurement of progress is that several teachers mentioned how the evidence they would be able to collect regarding the child's small increments of progress could be used with external bodies, such as Ofsted, or parents. The teachers suggested that they could collect evidence, write on the framework and select categories at the start of the year, and then measure again at a later date. This could be used to provide parents or Ofsted with visual evidence of play progression. Additionally, the grateful approach identified within the interviews supports the view that teachers desire a tool that can demonstrate progress in the area of play. One comment exemplifying this was from Teacher 16: "thank you, I feel like I am armed for Ofsted."

7.4.2 Classroom management

Classroom teachers hold multiple responsibilities, including the management of support staff. Within a special school, teachers can have anywhere between 2-5 additional staff members in the classroom. Multiple teachers in this study explained that it was difficult to manage a range personalities, abilities and preferences among the TAs. It was suggested that this resource can help to manage the tasks that support staff were asked to complete.

Some teachers discussed how they asked teaching assistants to use the resource to identify what a child was doing during free-play periods – essentially getting the TAs to baseline play in specific instances. Teachers also suggested that they used the resource to get TAs to select an area to work on with a child. For example, Teacher 16 explained that after showing the resources to their TA, the TA was then seen encouraging a child who was leaning

against the wall to move and tap their hand against another wall. This suggests that the framework was used to encourage interaction with the environment, in this case using the wall as a play object. The teacher further explained that they did not need to set a task for the TA to complete, but rather that the TA could use the resource to lead the play actions of the child independently. It was suggested that this helped the teacher with classroom management, since it enabled the child to be engaged in an activity while the teacher was able to move forward with other children. In a complex and busy classroom, supporting the management of TAs is a valuable contribution that can allow more opportunities for play. Additionally, almost all teachers interviewed mentioned that in future they would build on this and further engage their support staff in using the framework.

This is important because multiple research projects have emphasised the complexities of the role of TAs (Blatchford et al., 2009; Sharples, Webster, & Blatchford, 2015), and the interviews from teachers suggested the framework can help to manage TAs. Furthermore, the training options available for TAs are claimed to be more suitable for those supporting in mainstream schools than for those working with pupils with severe or profound learning difficulties (Martin & Alborz, 2014). Thus, the development of a resource that can support the training and development of TAs is valuable, particularly in specialist schools where there are frequently a range of TAs in one room.

7.4.3 Continuing professional development

An important implication of the play resource developed within this research is its potential for engaging teachers in learning opportunities. A recent report from the Teacher Development Trust (2017), from data collected across 714 schools in England in the 2014/15 financial year, stated that the median spend on CPD is only 0.7% of a school's entire budget. Considering that funding for CPD opportunities for professionals is limited across the education sector, it could

be suggested that any opportunity to develop the knowledge of professionals through a more informal method would be useful. This is particularly the case given that informal professional development has also been found to have a more positive effect than formal professional development (Woodcock & Hardy, 2017).

The intended aim and objectives of the study were not focused on teaching the professionals about functional play; however, engagement with the resource suggested that the teachers were able to develop their own knowledge. Although this knowledge was not specifically measured, teachers indicated that their understanding of actions related to functional play developed. Importantly, this deeper understanding of play may allow teachers to support play experiences more effectively. The teachers commented that their knowledge about play developed by examining play holistically, but especially as a result of the depth and specificity of the resource. They claimed that because the resource broke down the play actions, they were able to further understand the components that make up functional play. They claimed this was different to their prior knowledge about play that frequently focused on moving children into imaginative play; thus, it is evident that the resource demonstrated a value in educating teachers about play for children with autism and SLD.

7.4.4 Recommendations from teachers about the framework

It has been argued that the created framework is valuable and usable, but before drawing final conclusions it is necessary to discuss the key recommendation points identified by the teachers. The teachers were viewed as collaborative partners in the development of the resource and were encouraged to scrutinise the framework and provide personal viewpoints. Although teachers were not initially forthcoming with recommendations, when prompted they did make a wide range of recommendations that influenced the final design and content of the play framework. Two notable key points were:

- Play frameworks need to be versatile
- Play frameworks should include enjoyment

7.4.4.1 Play frameworks need to be versatile

Each teacher is unique, each classroom is unique and the children in all classrooms have diverse individual needs and characteristics. Consequently, a resource intended for classroom use should meet the diverse needs of the individual setting and the people within it. Despite this, there is limited research in the area of autism that uses social validation of approaches (Parsons et al., 2013). It is vital that researchers consider the users throughout their work and this was a key priority within this research programme.

The recommendations offered by the teachers emphasised how they each had personal preferences. These preferences were identified when teachers presented different views regarding the layout of the resource. Some teachers claimed that they preferred the framework to be on one page, whereas an equal number preferred larger text across multiple pages. This preference does not alter the resource, but it does allow the users some flexibility. However, it can be suggested that rarely if ever do resources related to play provide any opportunity for teachers to personalise or include variations. This is viewed as a limitation of other resources that could be easily altered. The preferences identified by teachers were not significantly different in what they wanted regarding the resource, but they were each slightly different and reflected unique personal preferences.

Additionally, by seeking the views of the users regarding the framework, it was established that they used the resource in diverse ways in the classroom. Eight teachers provided 27 responses for the way that they used the resource. When teachers were given the freedom to use the resource in a manner they saw fit, they actually identified multiple uses related to supporting play. This is similar to studies that suggest teachers implement

interventions differently in practice (Matson & Shoemaker, 2009; Stahmer et al., 2005). This diversity and variation further emphasised the value of creating a versatile framework. Teachers use resources differently and have different preferences; therefore, during the final stages of creating the framework, the researcher created the same content with two variations (Appendices 15 and 16). One version has the content in a condensed version across two pages, whereas the other resource is spread across multiple pages. It is recognised that this is only a minor variation, but it was identified as presenting a more versatile framework than the currently available play frameworks. In future, greater flexibility could be further considered.

7.4.4.2 Importance of enjoyment

The final recommendation that can be considered as a key point was the concept of enjoyment within the observed play. This was an area that was not a part of the framework when the teachers trialled it. After the trial, it was suggested that the idea of enjoyment be included in the resource; consequently, it is now a component within the framework. This is consistent with literature that claims a defining feature of play is enjoyment (Burghardt, 2005).

Enjoyment or ideas relating to playfulness were not initially present because the research focused on observable behavioural actions rather than underlying psychological constructs such as feelings or disposition. Enjoyment can be visually identified through non-verbal cues such as smiling or laughter, but this would need some understanding of playfulness that requires in turn an understanding of the underlying internal attitude toward the action (Howard & McInnes, 2013). That would involve moving away from the observable actions to a focus on the characteristics of the child (Barnett 1990). Actions can appear to be play, but when examined at the level of playfulness a child could explain that they were not enjoying the activity or having fun (Howard & McInnes, 2013). Research in the area of playfulness or viewing play in relation to characteristics within the child is not a new concept (Barnett, 1990),

but it has not been the focus of this study. However, engaging the teachers within the interviews led to the addition of the component of playfulness within the framework, which is viewed as a strength of the study.

Furthermore, it is recognised that teachers might not actually be able to identify the underlying attitude due to the limited language or ability of the children, but that they could use visual clues to make a prediction of the enjoyment levels of a child. The concept of enjoyment was viewed as a valuable aspect to teachers and within the literature, so it was included in the framework; in contrast, other play resources omit the concept of enjoyment (Kossyvaki & Papoudi, 2016).

7.5 Summary

The overall key findings from this research were:

- Functional play for children with autism and SLD is complex and multi-faceted and should no longer be described as only using an object as its function denotes
- Functional play includes play with one object, two (or more) objects, self, and the environment
- Functional play has additional components that contribute to a holistic approach
- Teachers can use the framework to baseline play, set targets and measure (including evidence) play progression for children with autism and SLD
- The framework supports classroom management, and continuing professional development
- Play frameworks need versatility and should include an aspect of enjoyment
- The play framework extends the currently available frameworks through:

- Greater depth and detail
- Collaboration with the teachers to create the framework
- A grounded theory approach to analysis of the play observations
- Detailed description of how the resource was developed
- Recognition of the diversity of play objects
- Acknowledgement of repetition in play
- A holistic approach

8. Chapter 8: Conclusion

8.1 Research overview

The original intention of the current study was to implement a play intervention (CPRT) to support the play skills of children with autism and SLD. However, as a result of the initial pilot stages of meeting and working with the children and teachers, multiple limitations were identified that altered the course of the study. It became evident that there was a need for teachers to have a play framework to baseline, measure and set play targets before they could effectively implement a play intervention. The framework needed to address the multiple limitations, in particular the depth and specificity within available functional play categories in order to support the small stages of progress that children with autism and SLD present. This is further supported by the literature that emphasises the need for research to investigate the content and structure of play for children with autism and acknowledges the need for sub-typing and comprehensive coding schemes to support play and development (Dominguez et al., 2006; Karin Lifter et al., 2011; Thiemann-Bourque et al., 2012; Williams et al., 2001). The current study adopted a pragmatic approach and used mixed methods with an overall aim to examine the functional play presented by children with autism and SLD, in order to design a play framework that supports functional play development in the classroom.

The main objectives of the study were to:

1. Describe and analyse the functional play actions completed by children aged 3-11 and diagnosed with a combination of autism and SLD.
2. Create a framework for identifying and analysing functional play skills exhibited by children with autism and SLD.

3. Collaborate with teachers to generate a functional play framework that enables them to support the development of functional play skills of children with autism and SLD in the classroom.

This chapter will revisit the main aim and research objectives by summarising the key findings from all three studies and drawing conclusions from the results. Recommendations for future research will be presented and, importantly, the contribution to new knowledge will be highlighted. The limitations and strengths of the study will be explored and a brief personal reflection on the concept of enjoyment in play and play research will be presented.

8.2 Research objective 1: Describe the functional play actions completed by children aged 3-11 and diagnosed with a combination of autism and SLD

Functional play for children with autism is generally defined as using an object as its function denotes (Libby et al., 1998). Occasionally, research differentiates functional play into smaller classifications that describe actions related to functional play (Williams et al., 2001). However, the findings from the free-play observations within this research identified that functional play is more complex than simply using an object as its function denotes or the simple differentiation identified. The current study defined four key areas of functional play: interacting with one object; interacting with two (or more) objects; interacting with self; and interacting with the environment. Each of these categories were further defined, with 6-10 additional descriptions of actions under the main headings (see Appendix 18). This challenges the assumptions that presume, or even classify, functional play for children with autism as interacting with only one or two objects and occasionally self, but rarely ever the environment. Alongside the four key areas identified, seven subcategories were viewed within the observations and established as additional components related to functional play. The identified areas were: eye contact; selecting; body position; facial expression; problem solving; vocalisation; and functional play

with peers (see Figure 10.). In addition, interviews with classroom teachers revealed further the complexities and diverse components associated with functional play. Teachers emphasised object preferences, amount of time playing, location, enjoyment, and comparisons to children with typical development as key components of functional play for children with autism. However, almost all these additional components are rarely included in existing discussions about functional play for children with autism. While they are discussed within the separate literature on autism or in play literature, they are not specifically related to functional play or functional play taxonomies. This complexity was recognised across the observations and the interviews with teachers.

Depth and specificity in the categories is important because through the identification of smaller steps teachers can plan specific targets and measure small (but very important) incremental progression. Additionally, the literature frequently emphasises the need for consistent and sensitive measurement scales to be developed for use in comparison studies (Dominguez et al., 2006; Libby et al., 1998; Thiemann-Bourque et al., 2012). Studies investigating the diversity and frequency of play for children with autism regularly encounter diverse results (Holmes & Willoughby, 2005; Naber et al., 2008; Williams et al., 2001). These diverse results could be a product of the measurement scales, but this framework supports the need for comprehensive coding schemes.

Overall, the results of the present study suggest that functional play for children with autism and SLD is far more complex than currently recognised. The complexity identified suggests that there are a range of actions being presented in and around the functional play category. These smaller steps and small components of functional play were identified, thus bringing together a holistic, highly specific description of functional play for children with autism and SLD.

8.3 Research objective 2: Create a framework for identifying and analysing functional play skills exhibited by children with autism and SLD

This research programme created a functional play framework, based on the observations of children and interviews with teachers, that extends the currently available functional play frameworks. As discussed in Chapter 2, a review of the literature suggested that there are multiple limitations within existing available play frameworks. The main concerns identified were the limited depth, the focus on typically developing children or children with a developmental age over two years old, and the limited involvement of practitioners. These concerns were addressed immediately within the sample group selected, the inclusion of professions and through a grounded approach to analysis of the play observations. Additional concerns were mentioned in the literature review regarding the requirement of specific toys, extensive social interactions, limited reference to the users and extensive reference to doll play. These limitations were noted as important to recognise when providing support for the specific needs of children with autism and SLD and were addressed throughout the current study.

By recognising and reducing the limitations of existing frameworks, this research has given teachers access to a framework that supports the needs of a specific group of children, as well as one that extends the existing frameworks. The framework created within this study extends existing frameworks in seven ways: greater depth and detail in descriptions of play; collaboration with teachers; grounded theory approach to analysis; transparent development; recognition of diversity in play object; a holistic approach; and an acknowledgement of repetition in play. This implies that by creating a resource that is bespoke to the unique characteristics and actions of children with autism and SLD, and one that includes the teachers' perspectives on play, the resource can identify and analyse functional play and support practitioners and children.

8.4 Research objective 3: Collaborate with teachers to generate a functional play framework that enables them to support the development of functional play skills of children with autism and SLD in the classroom

The purpose of including teachers in the research was to ensure the framework reflected their views and was usable in the classroom, since they were intended users of the resource. This is supported by research suggesting there is a lack of social validation in autism research and by claims that engagement with those in the communities of autism are rarely included in research or only included in the final stages (Callahan et al., 2008; Parsons et al., 2013).

This study has engaged with the professionals throughout the process of creating the resource. Within Study 2, teachers' views were sought regarding the specific functional play they view in their classrooms, and these perspectives directly informed the initial creation of the framework. In Study 3, teachers were able to provide recommendations for further development of the resource and could also provide their views on the usability of the resource, all of which informed the final design of the framework. Teachers' recommendations in the final stages of the resource emphasised the need for a versatile framework and this had a direct bearing on the creation of a variation document and the extension of the content on the introductory page. Teachers' final recommendations also directly contributed to the inclusion of the missing component of enjoyment in the play framework. Across the studies, teachers' views were consistently sought to inform the framework.

Besides working with teachers to gather recommendations and develop the framework, the views and opinions of teachers were also sought on the usability, reliability and validity of the resource. As collaborative partners in the creation of a functional play framework, teachers identified that they could use the framework to baseline play, set targets and measure (including evidence) play progression for children with autism and SLD. They also suggested that the framework supports classroom management and continuing professional development.

Overall, teachers' views indicate that the resource can support their practice and provide some of the missing components identified within key assessment measures currently used in schools. Measures such as Bsquared, P-scales and PIVATS were identified as not presenting a focus on play and unable to demonstrate the small increments of progress frequently associated with children with autism and SLD (Imray & Hinchcliffe, 2012, 2014); teachers in the current study stated that the proposed framework addressed these concerns. The proposed framework facilitates the identification of small increments of progress, which will allow play interventions that support pupils with autism to be more accurately implemented and evaluated in future. Generally, teachers were identified as valuable contributors throughout the study, and without their perspectives the framework might not have been usable.

8.5 Limitations

This study recognises that there are multiple limitations or potential criticisms of the research process or results of the study. First, the sample size of this study is relatively small and therefore limits the generalisability of the results. This study involved a total of 27 children and 12 teachers across three schools, and although this is not a wide-scale study representative of the autism population or teachers, the research used a similar or greater number of participants than studies that focus on functional play for children with autism. For example, Williams et al.'s (2001) study had a sample of 15 children with autism, and Lifter (2000) based the DPA on a small sample of 14 children. Therefore, although this study is not generalisable, it did aim for a similar sample group to that of other studies focused on play for children with autism.

Additionally, this study recognises that the play observations were only short glimpses of play actions. Therefore, it provides only brief examples of play skills presented by the children with autism. This is again similar to Williams et al.'s (2001) study, but it is recognised

that if children with autism were observed over a longitudinal study then there would be a greater potential for identifying patterns in how the play progresses, as well as more or different play actions.

Furthermore, this study might be criticised for response biases in the interview process. Teachers were aware of the purpose of the play framework and so might have been inclined to demonstrate that the resource could support play. Some of the participants were involved across Study 2 and Study 3 and were thus aware of the specific details and process involved in creating the resource; they may, therefore, have wanted the resource to succeed. However, the study also engaged with teachers who were not as heavily invested in the project and who were only involved in the final stage; this was an attempt to address the potential response bias. Additionally, the teachers were asked open-ended questions to identify how they used the resource, instead of asking more directly if they had used it in a specific manner. However, it is recognised that some teachers may have responded with answers that confirmed the usability of the resource in a positive manner to satisfy the researcher and the research (Bryman, 2012).

Moreover, the exclusivity of the categories presented in the framework might be open to criticism. Mutually exclusive categories suggest that only one label can be provided for an action presented (Archer, 1992). Within the current framework, it is recognised that there is overlap across categories and occurrences when more than one label might be applied to an action. However, it can be argued that one stage does not end and the next begin (Johnson et al. 2005), so at times overlap will occur as children learn, develop and progress in development.

Finally, limitations are also recognised within the skills of the researcher (Biggam, 2011). The researcher's knowledge across the study developed and therefore limitations are recognised in the analysis of the data as the study progressed. A more general approach to analysing the observation data was used in Study 1, whereas Study 2 more systematically employed a classic grounded theory approach to analysis. However, Study 1 was viewed as a

pilot study and was, therefore, part of the development that would identify the most suitable approach to data analysis. The knowledge of grounded theory analysis in Study 2 provides a deeper and more closely associated method for staying as close as possible to the data collected; had it been employed throughout the pilot, it could have strengthened the research.

8.6 Recommendations

Based on the limitations identified above and the key findings and conclusions drawn across the studies, three key recommendations are put forward. First, due to the limited research focusing specifically on content and structure, and the detailed descriptions that were obtained from a grounded approach to analysis in this study, it is suggested that more observations on the content and structure of play are conducted. Continuing to build up strong descriptions of the play that children with autism present will further develop our understanding of how to specifically support this group of children. The deeper the understanding of the specific play actions children present, the greater the ability to identify specific deficits in comparison studies and, more specifically, to target support in these areas.

Next, professionals should be further included in research to understand play. Within this study, the teachers were key contributors to the final outcome of the play framework and their views added aspects that were not available through observations alone. The unique contributions they brought to this study highlight the need for users to be consulted more frequently in descriptive play research. This could benefit the teachers as they gain and build a relationship with researchers, possibly encouraging more practice-based research, and more generally is recommended for the way that teachers' unique perspectives can contribute to and widen our understanding of the play actions children present.

Finally, and specifically related to the overall results of this study, future trials of the framework are required to continue and verify the validity and reliability of results, and also to ensure the ability of teachers to use the framework to baseline, measure and set targets for classroom-based play interventions. The final stages of this research programme were focused on continuing to build the resource and were not solely based on measuring its effectiveness. There was only a small sample size of teachers who provided feedback on the usability, so including a wider range of teachers would further ensure that the resource supports the specific needs of children with autism and SLD as well as the professionals who support them. Additionally, using the framework alongside a specific intervention would continue to ensure the resource is usable in practice.

8.7 Contributions to knowledge and implications for future practice

The main contribution to knowledge is the development of the functional play framework for children with autism and SLD. To date, no other research identifies the complexities of functional play for children with autism and SLD at the depth and detail presented within this study. Other studies have created frameworks about play (Lifter et al., 2011) and functional play (Williams et al., 2001), but they do not provide a comparable level of detail or specificity, and they have not been developed from observations of children with a diagnosis of autism and SLD. Importantly, through the depth and detail established, this research enables small steps in functional play for children with autism to be identified and measured, something that is not possible with the other research available. Therefore, given the potential benefits of play and the opportunity it provides to reflect, reinforce and/or result in development (Johnson et al. 2005), the potential impact of the framework to support the developments and outcomes of children with autism and SLD is marked.

Alongside this main contribution, the process of collecting the data brings additional contributions to knowledge. A grounded analysis of the observational data that also sought the views of classroom teachers is unique for research on functional play for children with autism and SLD. Some research (Naber et al., 2008; Ungerer & Sigman, 1981) used the teachers to report on the play abilities of children with autism, but to date no other research has included the teachers throughout the process in order to co-create a functional play framework for children with autism and SLD. This is important because it supports the development of a usable resource that reflects the teachers' perceptions of play actions of children with autism and SLD but also contributes to reducing the gap between researchers and those in the autism communities. Teachers have valuable experiences and insights to share in our understanding of functional play, and in this study they identified additional key components that contributed to the detailed functional play framework.

In future, the framework could be used within special schools to support development and assessment of play skills for children with autism and SLD. Supplementary resources, such as video clips or even a mobile application, could be developed to introduce the resource to teachers and support staff, which would provide additional provision and extend the framework. Additionally, this resource could be the baseline resource for frequently used play interventions or, in comparison studies, for providing comprehensive coding schemes. Overall, the functional play framework has the potential to have a valuable impact in the classroom which will contribute to the progression and development of children with autism and SLD.

8.8 Reflections: The importance of enjoyment in play and play research

As I reflect on the research project across the years, I am confident that I have learned and refined a vast number of skills. Some of these skills could be identified as "life lessons" about

project management, time management, or working with other professionals. Others are skills that would be more accurately defined as research skills: skills such as synthesising the literature, drawing conclusions or even, simply, advancing my searching skills, all of which have developed over the years. When I wondered how I might conclude the research, I considered explaining how much knowledge I had gained about mixed methods research or my journey through grounded theory analysis. However, when I reflect on the project as a whole, I realise that the moment which stood out as the most unexpected result was the realisation that I "forgot" about "enjoyment" within play. Therefore, I will briefly discuss this idea and put forward the value of remembering and returning to the concept of enjoyment even when conducting serious play research.

8.8.1 Reflection

When I began this research, I believed that play was important, I knew it was valuable in learning as it has been emphasised across my childhood and higher education courses, and it had been a key element in my classrooms as a practitioner. As the study progressed, I further recognised the criticisms and limitations of the concept of play. For the sake of maintaining a clear focus for the conceptual coherence of the study, I was not able to include every aspect of what constitutes play within the literature; for example, the area of enjoyment would entail a whole new piece of research and a different methodology.

It was two classroom teachers who raised this lack of enjoyment and who introduced enjoyment to the research. The concept of enjoyment was an area that was identified as missing from the framework when teachers provided feedback and added their views about the final framework. The moment the first teacher stated, "What happened to enjoyment, isn't play meant to be fun?" encouraged me to further consider: Why do children play? Is it because an adult told them to or because it helps their development? No, I truly believe children play

because it is fun, because they enjoy playing. I also believe this is the case for adults too. Adults go out and play, not necessarily in the same way that children do, but certainly in a way that suggests they are doing it for enjoyment. That reason alone should be sufficient to engage in play, but this concept of enjoyment was originally neither at the forefront of the research nor on the play framework, since the focus was on supporting development.

The desire to create a study that objectively viewed play behaviours and focused on content and structure instead of feelings, emotions and intent moved the study away from the concept of enjoyment. Although this presents a rationale for not initially identifying the aspect of enjoyment, I am grateful that the teachers brought the concept of enjoyment to the framework. Nevertheless, while I remain entirely convinced of the need for this study to focus on objective observations for the benefit of a strong framework, I am left wondering how future researchers in the area of play, playwork or philosophies of play can engage in this often missing component of enjoyment or fun.

This question leads me to reflect on a recent experience presenting at the World Play conference in Vilnius, Lithuania. I listened to a session in which Peter Smith emphasised the value of using the middle ground to research and investigate play. He argued for the importance of finding space between ignoring and idolising play. Therefore, this idea of the middle ground could be applied in relation to enjoyment. Research might consider ensuring that the concept of enjoyment is neither ignored nor idolised within studies. I am not suggesting that enjoyment in play is a new area, since it is clearly identified as a specific criterion in play, but as a researcher I believe we might sometimes get caught up in the research and forget to consider play for play's sake. This might be from the pressures to conduct rigorous research or because enjoyment is difficult to measure, but the middle ground might be a place in which enjoyment is considered at some stage of all research. Therefore, it is not idolised as the entire focus, but neither is it ignored or cast aside as being less valuable.

Finally, I must also recognise how this concept of enjoyment fits within play specifically for children with autism. In my teaching experience, there have been many children with whom I have had the pleasure of working and playing, but I may never truly know whether the children themselves enjoyed the play or if they intrinsically enjoyed the actions they were doing. This is because of their limited language and ability. However, I still see value in play for play's sake for this group of children. I would urge that future play research continues to reflect on and more outwardly acknowledge how play for play's sake, or the idea of enjoyment or fun, is considered even when conducting systematic and rigorous research. It is recommended that future studies which conduct play research consider and further investigate the concept of enjoyment.

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10. Appendices

10.1 Appendix 1: Art and Design Performance Descriptors

P1 (i) Pupils encounter activities and experiences

• They may be passive or resistant

• They may show simple reflex responses [for example, startling at sudden noises or movements]

• Any participation is fully prompted.

P1 (ii) Pupils show emerging awareness of activities and experiences

• They may have periods when they appear alert and ready to focus their attention on

certain people, events, objects or parts of objects [for example, looking briefly at brightly coloured objects]

• They may give intermittent reactions [for example, sometimes putting their hands in

wet paint].

P2 (i) Pupils begin to respond consistently to familiar people, events and objects

• They react to new activities and experiences [for example, pulling their hands away from an unfamiliar texture]

• They begin to show interest in people, events and objects [for example, focusing their attention on bold black and white patterns]

• They accept and engage in coactive exploration [for example, feeling the textures of

a range of art materials].

P2 (ii) Pupils begin to be proactive in their interactions

• They communicate consistent preferences and affective responses [for example,

reaching for glittery materials in preference to others]

• They recognise familiar people, events and objects [for example, grasping a painting sponge]

• They perform actions, often by trial and improvement, and they remember learned

responses over short periods of time [for example, returning their hands to a particular texture]

• They cooperate with shared exploration and supported participation [for example, working with an adult to press, roll, or pinch wet clay].

P3 (i) Pupils begin to communicate intentionally

• They seek attention through eye contact, gesture or action.

• They request events or activities [for example, pointing to the painting table]

• They participate in shared activities with less support

• They sustain concentration for short periods. They explore materials in increasingly

complex ways [for example, making banging, stroking and circling movements with a

paint-laden brush]

• They observe the results of their own actions with interest [for example, looking at marks they have made with paint]

• They remember learned responses over more extended periods [for example, dipping a spreader into glue in weekly art and design sessions].

P3 (ii) Pupils use emerging conventional communication

• They greet known people and may initiate interactions and activities [for example,

putting the roller into the paint]

• They can remember learned responses over increasing periods of time and may

anticipate known events [for example, locating the painting aprons on entering the art room]

• They may respond to options and choices with actions or gestures [for example,

pointing to a preferred paint colour from a choice of two]

• They actively explore objects and events for more extended periods [for example,

stroking, shaking or folding papers of different colours or qualities]

• They apply potential solutions systematically to problems [for example, banging clay with a tool to try to flatten it].

P4 Pupils show some awareness of cause and effect in a creative process

• They explore materials systematically [for example, tearing and scrunching paper to complete a collage]

• They are aware of starting or stopping a process

• They make marks intentionally on a surface with fingers or tools [for example, pressing objects into clay or putting paint on paper]

• They repeat an activity to make the same or similar effect

• They show an active interest in a range of tools and materials, taking part in familiar

activities with some support.

P5 Pupils handle or use tools and materials purposefully

• They show preferences for activities and begin to carry out simple processes

• They choose tools and materials which are appropriate to the activity [for example, picking brushes or rollers for painting]

• They show they can create and apply familiar techniques to a task [for example,

manipulating and shaping malleable materials to produce a desired effect or applying glue to a surface to make materials stick together in making a model].

P6 Pupils show an intention to create

• They start to use tools, materials and simple actions to produce a piece of work

• They imitate the use of tools, materials and simple actions [for example, cutting].

• They practise new skills with less support, developing their knowledge of the process

of making [for example, selecting and gathering suitable resources and tools for a piece of work].

P7 Pupils communicate ideas, events or experiences through their use of colour, form, line and tone

• Working in two or three dimensions they may intentionally represent or symbolise an object or an emotion

• They purposefully choose colours or techniques

• They show confidence in using a variety of processes and make appropriate use of tools and materials.

P8 Pupils develop their ideas and use materials and processes working in two and three dimensions

• They finish a piece of work following an established pattern of activity [for example,

gathering appropriate materials, taking part in an activity and stopping work when finished]

• They know that paintings, sculptures and drawings have meaning

• They use a growing art vocabulary and begin to express meaning in their own work.

DfE (2014)

10.2 Appendix 2 P Scales: Level P4

Performance Scales (P Scales) Level P4 (Dfe,2014)
Art and Design: Pupils show some awareness of cause and effect in a creative process • They explore materials systematically [for example, tearing and scrunching paper to complete a collage] • They are aware of starting or stopping a process • They make marks intentionally on a surface with fingers or tools [for example, pressing objects into clay or putting paint on paper] • They repeat an activity to make the same or similar effect • They show an active interest in a range of tools and materials, taking part in familiar activities with some support.
Computing: Pupils make selections to communicate meanings, [for example, identifying a symbol or creating a sound] • Pupils make selections to generate familiar/preferred sounds or images. They know that certain actions produce predictable results [for example, using a switch to activate a tape recorder] • The assumption is that the pupil will use their preferred method of access throughout
Design and Technology: P4 With help, pupils begin to assemble components provided for an activity [for example, placing bricks together] • They contribute to activities by coactively grasping and moving simple tools, [for example, a glue spreader] • They explore options within a limited range of materials [for example, adding grapes or chopped apple to a fruit salad].
English: Speaking: Pupils repeat, copy and imitate between 10 and 50 single words, signs or phrases or use a repertoire of objects of reference or symbols • They use single words, signs and symbols for familiar objects [for example, cup, biscuit], and to communicate about events and feelings [for example, likes and dislikes].
English: Listening: Pupils demonstrate an understanding of at least 50 words, including the names of familiar objects • Pupils respond appropriately to simple requests which contain one key word, sign or symbol in familiar situations [for example, 'Get your coat', 'Stand up' or ' Clap your hands'].
English: Reading: Pupils listen and respond to familiar rhymes and stories • They show some understanding of how books work [for example, turning pages and holding the book the right way up].
English: Writing: Pupils show that they understand that marks and symbols convey meaning [for example, placing photographs or symbols on a timetable or in a sequence] • They make marks or symbols in their preferred mode of communication.
Geography: Pupils extend the skills to help them explore the world • They handle artefacts and materials given to them [for example, looking at the postal

worker's bag and letters, or using a bin to collect litter]
• They know that certain actions produce predictable results [for example, pushing the button will make the fire engine siren sound]
• They know familiar places and people and what they are there for [for example, park, school, police person, and use gestures, signs, symbols or single words to show that they know them].

History: Pupils recognise themselves and other people in pictures of the recent past
• They link the passage of time with a variety of indicators [for example, weekend activities, summer holidays or seasonal changes]
• They use single words, signs or symbols to confirm the function of everyday items from the past [for example, 'cup', 'bed', 'house'].

Math: Using and applying: Pupils are aware of cause and effects in familiar mathematical activities [for example, knowing that in a role-play shop a coin can be exchanged for an item; hitting a mathematical shape on a concept keyboard to make it appear on the screen]
• Pupils show awareness of changes in shape, position or quantity [for example, grouping objects that have similar key features such as shape; creating very simple sequences of light or sound using switched equipment; recalling an object which has been placed out of sight]
• They anticipate, follow and join in familiar activities when given a contextual clue [for example, anticipating the next chorus or action in songs and rhymes; matching cakes to plates].

Math: Number: Pupils show an awareness of number activities and counting [for example copying some actions during number rhymes, songs and number games; following a sequence of
pictures or numbers as indicated by a known person during number rhymes and songs].

Math: Shape, Space and Measures: Pupils search for objects that have gone out of sight, hearing or touch, demonstrating the beginning of object permanence [for example, searching for an object or sound when it is removed]
• Pupils match big objects and small objects [for example, finding a big football to place in a net with other big footballs, matching a small model car with a similar sized model car]
• They demonstrate interest in position and the relationship between objects [for example, stacking or joining objects or using construction materials].

Music: P4 Pupils use single words, gestures, signs, objects, pictures or symbols to communicate
about familiar musical activities or name familiar instruments
• With some support, they listen and attend to familiar musical activities and follow and join in familiar routines
• They are aware of cause and effect in familiar events [for example, what happens when particular instruments are shaken, banged, scraped or blown, or that a sound can be started and stopped or linked to movement through a sound beam]
• They begin to look for an instrument or noisemaker played out of sight
• They repeat copy and imitate actions, sounds or words in songs and musical performances.

Physical Education: Pupils' movement patterns are established and they perform single actions [for example, rolling, running, jumping or splashing] • They respond to simple commands [for example, 'stop'] • They recognise familiar pieces of equipment [for example, a ball or hoop] • They show awareness of cause and effect [for example, knocking down skittles].
Personal, Social, Heath and Economic Education and Citizenship: Pupils express their feelings, needs, likes and dislikes using single elements of communication (words, gestures, signs or symbols) • They engage in parallel activity with several others • Pupils follow familiar routines and take part in familiar tasks or activities with support from others • They show an understanding of 'yes' and 'no', and recognise and respond to animated praise or criticism. They begin to respond to the feelings of others [for example, matching their emotions and becoming upset].
Science: Pupils explore objects and materials provided, changing some materials by physical means and observing the outcomes [for example, when mixing flour and water] • Pupils communicate their awareness of changes in light, sound or movement. • They imitate actions involving main body parts [for example, clapping or stamping]. They make sounds using their own bodies [for example, tapping, singing or vocalising], and imitate or copy sounds • They cause movement by a pushing or pulling action 'Explore' includes access through any sensory mode • Teachers should ensure that they are assessing intended, not accidental, actions.
Religion: Pupils use single elements of communication [for example, words, gestures, signs or symbols, to express their feelings] • They show they understand 'yes' and 'no'. They begin to respond to the feelings of others [for example, matching their emotions and laughing when another pupil is laughing] • They join in with activities by initiating ritual actions or sounds. They may demonstrate an appreciation of stillness and quietness.

10.3 Appendix 3 Example PIVATS (P4 and P5 Number)

PIVATS PERFORMANCE INDICATORS:					PIVATS MILESTONE P4 AND P5:
Pupil can participate in rhymes at an appropriate point, with occasional prompts, *e.g. by pressing a single switch, by indicating with finger pointing or eye pointing to the next in a sequence.*	Pupil can begin to anticipate the ending or key elements of rhymes, songs and number games.	Pupil follows a sequence as indicated by an adult, *e.g. the sequence of the rhythm of counting as in a rhyme, or a sequence of pictures used to show a simple rhyme, 5 frogs as they jump off the log.*	Pupil can use a finger to indicate 'one'.	Pupil can during rhymes, songs and number games indicate through sign, speech or gesture the next action following a prompt, *e.g. when singing 5 green bottles the child can indicate the next bottle to be removed.*	**P4 Pupils show an awareness of number activities and counting, for example, copying some actions during number rhymes, songs and number games, following a sequence of pictures or numbers as indicated by a known person during number rhymes and songs.**
Pupil demonstrates awareness of contrasting quantities where there is a marked difference, *e.g. one cake and lots of cakes on plates.*	Pupil can join in by saying, signing or indicating at least one of the numbers in familiar rhymes, stories, games and practical activities.	Pupil can indicate one or two by copying an adult, *e.g. puts up just one or both hands.*	Pupil can demonstrate some understanding of the sequence of numbers by joining in with the counting in familiar rhymes, songs, stories and practical activities.	Pupil can show and name one finger then show another and name the quantity as two.	**P5 Pupils respond to and join in with familiar number rhymes, stories, songs and games, for example, using a series of actions during the singing of a familiar song; joining in by saying, signing or indicating at least one of the numbers in a familiar number rhyme. Pupils can indicate one or two, for example, by using eye pointing, blinks, gestures or any other means to indicate one or two, as required. They demonstrate that they are aware of contrasting quantities, for example, one and lots by making groups of one or lots of food items on plates**

Number of PIVATS steps achieved:	PIVATS milestone equivalent:	PIVATS score	Number of PIVATS steps achieved:	PIVATS milestone equivalent:	PIVATS score	Number of PIVATS steps achieved:	PIVATS milestone equivalent:	PIVATS score	Number of PIVATS steps achieved:	PIVATS milestone equivalent:	PIVATS score	Number of PIVATS steps achieved:	PIVATS milestone equivalent:	PIVATS score
✓	P4e	5.2	✓✓	P4d	5.4	✓✓✓	P4c	5.6	✓✓✓✓	P4b	5.8	✓✓✓✓✓	P4a	6
✓	P5e	6.4	✓✓	P5d	6.8	✓✓✓	P5c	7.2	✓✓✓✓	P5b	7.6	✓✓✓✓✓	P5a	8

PIVATS (2017)

10.4 Appendix 4 BSquared Example (Level P6 Reading)

Sample School

English, Reading - Level P6

Name:

Home Language:.....

Started:..... Completed:.....

Word Reading: Apply knowledge		Word Reading: Fluency Accuracy
☐ Points to words with letters from own name ☐ Point to names / words beginning with the same letter as their own name ☐ Matches pictures ☐ Matches written shapes / letters ☐ Matches short words with distinct shape	☐ Points to text as they read books to themselves ☐ Starts at the front of the book ☐ Chooses book, saying/signing repetitive word/phrase before book is opened ☐ When 'reading' picture book, may change voice for a character i.e. booming/loud voice for a giant	☐ Points to own name ☐ Aware of own name on personal possessions-books ☐ Recognises words or symbols in the environment ☐ Reads words or symbols in the environment e.g. symbols for ladies/gents/disabled toilet
Comprehension: Attitudes to reading	**Comprehension: Understanding**	**Comprehension: Responding**
☐ Enjoys a story containing own or friend's name. ☐ Enjoys photo album with text ☐ Enjoys listening to specific books several times ☐ Frequently looks at books ☐ Looks at the same book many times ☐ Shares a book for 5 minutes ☐ Shares book with an adult + child ☐ Asks for a specific story ☐ Finds a specific book on request ☐ Turns pages with care ☐ Attempts part of a short rhyme by heart	☐ Finishes line in familiar repetitive passage ☐ Recognises specific character in different context ☐ Points to detail in picture ☐ Points to named object in pictures ☐ Makes predictions in familiar stories ☐ Objects when stories are altered ☐ Knows to find the title of a book on the cover	☐ Responds appropriately to specific character ☐ Creates own narrative when reading a book ☐ Discusses pictures in books ☐ Begin rhymes when specific page observed ☐ 'Acts' out the character i.e. super hero pose/stomping like a giant
P6 Reading - Pupils select and recognise or read a small number of words or symbols linked to a familiar vocabulary, for example, name, people, objects or actions. They match letters and short words.		

Bsquared (2017)

10.5 Appendix 5: Parent consent form

Dear_____,

My name is Christina Kuegel and I am a senior lecturer and research student at the University of Bedfordshire. In conjunction with xxxxx school I will be conducting a study to further understand the play skills of children with autism and I am asking for your child's participation in the research. We hope that by observing how children play we can help develop the methods that we use to teach children with autism and therefore support your child to more fully enjoy the benefits of play.

Your child will be involved in video observations during their free play time at school. All of the personal information that I collect will be kept confidential, destroyed after the study and will not be passed on to any third party in any form in which you (or your child) will be able to be identified. It is important that you know that it is not mandatory to participate. If you agree to allow your child to participate, you or your child can withdraw at any point in the study. I will also seek consent from your child before and during the observation. Consent will be sought through the use of your child's chosen communication style.

I will also make my findings available to you when I have completed my study. If you have any questions of concerns please feel free to contact me at christina.kuegel@beds.ac.uk or contact my supervisor at janice.wearmouth@beds.ac.uk

This research aims to benefit the experiences of children with autism and your participation would be greatly valued.

Thank you,

Christina Kuegel

Christina Kuegel

I give my consent for _____ to participate in the research investigating play.

Parent's Name: ___ _____

Parent's Signature: _____Date: _____

10.6 Appendix 6: Teacher/staff consent form Study 1

Dear _____,

My name is Christina Kuegel and I am a senior lecturer and research student at the University of Bedfordshire. In conjunction with XXXX School I will be conducting a study to help support the play skills for children with autism and I am asking for your participation in the research. I hope that by observing and supporting children to play we can also help develop the methods that we use to teach children with autism and therefore support the children in your class to more fully enjoy the benefits of play.

The study will involve your participation in 1 interview about some of the children in your class, 2 after school training session son a play intervention and I will also come into your classroom to video some of the children in your class. All the personal information that I collect will be kept confidential, destroyed after the study and will not be passed on to any third party in any form that you will be able to be identified. It is important that you know that it is not mandatory to participate and you can withdraw at any point in the study.

I will also make my findings available to you when I have completed my study. If you have any questions or concerns, please feel free to contact me at Christina.kuegel@beds.ac.uk or contact my supervisor at Janice.wearmouth@beds.ac.uk.

Thank you,

Christina Kuegel

Christina Kuegel

I, _____ would like to participate in the research investigating play.

Signature: _____ Date_____

10.7 Appendix 7: Teacher consent forms Study 1 (classroom involvement)

Dear _____,

My name is Christina Kuegel and I am a senior lecturer and research student at the University of Bedfordshire. In conjunction with XXXX School I will be conducting a study to help support the play skills for children with autism and I am asking for your participation in the research. I hope that by observing and supporting children to play we can also help develop the methods that we use to teach children with autism and therefore support the children in your class to more fully enjoy the benefits of play.

I am seeking your consent to come into your classroom to observe some of your students. All the personal information that I collect will be kept confidential, destroyed after the study and will not be passed on to any third party in any form that you will be able to be identified. It is important that you know that it is not mandatory to participate and you can withdraw at any point in the study.

I will also make my findings available to you when I have completed my study. If you have any questions or concerns, please feel free to contact me at Christina.kuegel@beds.ac.uk or contact my supervisor at Janice.wearmouth@beds.ac.uk.

Thank you,

Christina Kuegel

Christina Kuegel

I, _____ would like to participate in the research investigating play.

Signature: _____ Date_____

10.8 Appendix 8: Teacher interview guide

Pre questions: How was your day? How long have you been teaching? Why did you decide to get involved in this this research?

1. Overall, how would you describe the play of child X (e.g., what does it look like, still/moving, locations, position, large and fine motor skills, support, alone or with peers etc.)

2. What play object does Child X choose to use during free time across a week? (How often? Characteristics of the object?)

3. Can you describe what Child X usually does with this specific object? (including any variations)

4. Can you identify any other play objects the child uses? (What do they do with that object? , How often?, similar? Different movements?)

5. What would the child do with a range of objects in front of them? (How would they use it? What actions would they complete?)

6. Does the Child X obtain his/her play objects? (independently, prompting, frequency of action)

7. Does Child X present any language/vocalisations during play? (Can you describe?)

8. Is there anything else you can tell me about Child X's play?

All information in brackets was added after the pilot for additional prompting for the researcher

10.9 Appendix 9: Examples of observation data (Study 1)

	Child G (sand tray, back of the class)
.30	Puts out left hand, leans forward with full grip grabs sand cup and picks up. Holding sand cup close to body, pauses and briefly looks left and right, pauses looking forward. Moves cup to other hand, leans forward towards sand tray and uses left hand to scoop full handfuls of sand into cup. Scoops three handfuls. Holds cup with both hands and moves slowly towards face. Sticks out tongue and makes eye contact with researcher, pauses and moves cup of sand closely towards tongue. Researcher interruption with, "no, down". Pauses in position maintaining direct eye contact towards researcher
1.00	Brings down away from face, holds cup in left hand and pours over the windmill sand toy. Holds above windmill pouring until almost all sand is out. Pauses, looks around towards the right and back. Puts other hand towards windmill and holds with three finger grip. Lifts cup up again and pours remining sand whilst holding windmill.
1.30	Puts cup towards sand and digs up sand using two digging scoops. Looking towards the right whilst digging. Looks back again towards cup. On the third dig, digs deeper with more pressure and fills the cup to overflowing. Slowly lifting cup, hand wobbles lifting the cup and sand pours out the top. Empties the sand out into the tray, slowly, looking at the sand pouring. Drops cup and spreads fingers and puts them into the sand, twist hands in sand rapidly three times.
2.00	Cups hands and collects a handful of sand, splits fingers on both hands and drops sand above the cup. Repeats action four times until the cup is almost full. Looking towards hands during actions. Sits down on the floor quickly, takes off left shoe with both hands and then takes off other shoe. Leans over and places both shoes under sand tray Moves both legs out in front looking down towards legs.
2.30	Stands up and moves directly back to sand tray. Smiling widely and looking towards the direction of the teacher. Looks towards sand, pauses, looking at the direction of the sand. Selects a shovel with right hand and flicks small bits of sand across the sandpit using the edge of the shovel. Continues flicking. Looking towards sand and at the edges of the tray
3.00	Continues flicking for 15 more seconds. Collects a large cup that is already half filled with left hand. Holds both in hands, puts down, against sand and pauses, lifts up to eye level and puts down again against sand. Lifts up again towards eye level, brings both close to eyes.
3.30	Pours sand from eye level onto the floor. Looking towards the floor. Verbally directed by TA to "tidy up".

	The child pauses looking in the direction of the TA. Bends down and picks up sand using a two-finger grip. Collects only a few pieces of sand. Then a full cup sweep with hands collecting the sand. TA gives small broom and verbally reminded to "keep sand in tray". No response is presented but the child looks in the direction of the TA. Uses broom appropriately to sweep up the majority of the sand and returns it to the sand tray.
4.00	Leaves small broom and pan, stands and then bends down and collects cup with both hands and puts in tray. Uses both cups at the same time to dig up sand to the top of the cup. Puts left cup down and spreads fingers, pours sand over top of hands, looking in the direction of hands. Drops cup and collects other filled cup, repeats same action and pours sand over hand. Drops cup, puts both hands flat in the sand. Wiggling fingers in the sand.
4.30	Turns around left and walks three steps away from tray, pauses, looking at ceiling. Walks over towards a table and puts both hands on the table flat. Leaning. Lifts left foot. Stays leaning and looking at the table for five seconds. Turns around right and walks back towards the sand tray Puts both hands on edge of sand tray briefly. Turns and walks towards selection board. Takes both hands and wipes the symbols in a downward motion. Puts both hands on symbols board and looks towards the images on the board
5	

	Child H (number cards, in corner of class)
.30	Retrieves bucket with both hands and sits crossed legged on the floor. Tips the bucket upside down and taps full hand on the bottom of the bucket Removes both shoes and puts one shoe behind him and then the other shoe behind him Turns back around to the shoe and grabs it by the laces and puts the shoe on legs. Smiling, and looking around the room slowly
1.00	Returns eye contact to the shoe and holds one of the laces with a pincer grip Begins rubbing between fingers. Rubbing between fingers, looking into the distance Picks up shoe with one hand and tosses over left shoulder Stands up using hands on ground to support
1.30	Walks over towards the shoe, four steps Bends down and pushes shoe with hand to the left Walks back over to the bucket of number cards, bends down Uses full hand to spread out cards Using a back and forth motion and moves the cards around Continues to move cards around Continues moving cards around looking in the direction of the cards Begins to put into a line on the floor, using both hands. No clear order
2:00	Selects four cards and holds in one hand, in a stack Places two back on the floor, looking at the cards Looking at the cards Removes six cards and puts into a pile on the floor

	Uses both hands to spread all the cards out Gathers them all together and puts into a stack on the floor, using both hands Stands up
2.30	Grabs shoes and walks over to the tent, which is across the room Bends down and climbs into the tent, tosses shoes in the side of the tent Lays down with hands behind head and feet crossed Looking around
3.00	Jumps up quickly from the tent and moves quickly over to the numbers Bends and selects the whole pile, stands and holds close to chest Moving mouth in and opening/close manner, no sound Begins looking through the cards. Shuffling one at a time and looking at the cards, holding with both hands Selects one card (number 10) and places it on the floor. Begins to shuffle through the cards
3.30	Selects the card 11 and put it on top of the last card Puts all cards down and holds the two cards Puts those cards down and begins shuffling while looking at cards Selects the card 12 Repeats actions selecting cards 13, 14, 15
4.00	Collects all the numbers from the floor and combines with number in hand to put back into the bucket Mixing numbers in the basket with left hand using a mixing motion Taking some out and looks at them, puts them back Again, mixes number cards in bucket, selects a handful and puts back in Continues to take some out and put back in Uses both hands to pick up bucket and empties all onto the floor Drops bucket, bends to knees and moves cards around with both hands Looks around and pauses
4.30	Begins to line up the number cards in a horizontal manner Once in a line of six deep starts to line up number in another row of six Shuffling remaining cards around, avoiding the two rows Makes one more row Tosses remining numbers in the bucket Stands up and looks down at numbers Places one foot on the number two and the other on the number three Looking down towards number and feet (no shoes)
5	

	Child F (cars, playdough, side of class, small desk)
.30	Pulls out chair with both hands and sits with play dough box already on the table Grabs the white playdough container with one hand Tips upside down, shaking (with lid still on) Tugs at lid with all fingers around the edge Puts it down on the table Looks at the direction of playdough tools Looking at direction of white playdough Pauses

	Pauses
1.00	Hits tub off table with back of left hand Pauses Looks down at the floor TA walks by and removes lid and places playdough on the table Child uses three fingers to pull out a small piece and then uses both hands to pick apart into even smaller pieces Small pieces fall onto their lap Child collects each of the small pieces from lap and place bits on the table, looks down and uses thump to push small piece of play dough onto trousers, then uses pointer finger to tap the play dough on their leg Tapping playdough and looking around towards the left in the direction of the computer Jumps up
1.30	Sits down and grabs the tub of white playdough with left hand and selects the lid with right hand (nearby) Taps the lid against the play dough container Taps the lid against the table Continues tapping lid against the table, looking at lid
2.00	Drops the lid on the table and swipes whole are to knock the lid onto the floor Grabs another lid that was on the table and swipes arm to send this one in opposing direction Stands up and walks to collects both lids, then sits down Repeats action with lids, knocking both in opposing directions Makes high pitched noise and scrunches up face
2.30	Removes a piece of playdough from the container Says “look” to no one in particular (possibly researcher) Squeezes in hand puts on the table Takes out the remaining play dough by digging with all fingers and begins to roll with both hands Drops from low level and leaves on table Collects the other smaller piece with both hands and rolls into a ball Combining one pieces at a time on top of each other Smooshes down onto the table with both hands Pats on the top flattening the dough with one hand Bangs on top with fist
3.00	Stands up States “now” Searches in the box, moving things with both hands around rapidly Collects the cutting tool Places on table, uses whole arm to swipe to the right Stands up and states “Now” Stands looking into the distance towards the wall Pauses
3.30	Standing, looks in box and up selects cutting tool with one hand, places foot on chair Picks up small piece of play dough Flattens with whole hand while holding toy scissors in other hand

	Picks up flattened pieces and attempts to cut, holding scissors incorrectly, holding outside of scissors Puts down flattened pieces and opens scissors with both hands Moves scissors towards table and uses scissors as a knife to cut a piece off Puts the small piece in mouth and I redirect him to "remove" Leaves the table by running over to the bin
4.00	Spits play dough into the bin Walks around the perimeter of the room, along the wall, looking towards the wall Returns to table and uses one hand to search in box Flicking toys out of the box onto the table, finds toy car Takes toy car out of the box and begins spinning the wheels of the front tire Sits down and continue same spinning action Looking around the room Begins rocking in the chair back and forth and spinning the tire of the car
4.30	Continues rocking but with more force Drops the cars on the floor Bends down and picks up the car Puts the car inside the empty play dough container and selects two lids in each hand Puts both lids (balancing) on the play dough container Removes lids and gathers play dough with both hands, moving into a ball as it is collected Puts the play dough into the container with the car Attempts putting on the lid using a flat hand position Continues to push the lid on with but with both hands
5	

	Child C (writing tablet, corner of class)
.30	Walks over towards the corner Pauses Selects the white board with two hands and bangs the board on the counter using a back and forth slow motion Continues banging and looking around, slight rocking in upper body
1.00	Drops board on the floor, selects a pen with right full hand grip Holds by the end, whole finger grip and begins tapping the pen on the counter Looking around tapping pen Leans forward so body is leaning against the counter. Continues tapping
1.30	Repeats steady tapping Repeats, tapping and looking around
2.00	Weight shift Still repeating tapping in a steady motion
2.30	Drops pen on the floor, looks down Bends down and collects board from the floor Sits down with board in front of crossed legs Taps with three fingers Continues tapping and looking at finger Begins tapping with two fingers, constant beat

3.00	Makes a soft humming sound and continues tapping the board with two fingers Selects the pen with right hand and begins tapping pen on the board Still sitting
3.30	Continues in a slow but steady movement of tapping pen and looking around
4.00	Tapping pen and looking around Stops briefly and looks in the direction of their leg Returns to tapping pen against the board, eye directed towards the board
4.30	Drops pen and turns the board over with both hands and lifts to eye level and drops loudly on the floor Looks around the room Looks around the room again Laughs loudly with hands flat on the board and leaning forward
5	

10.10 Appendix 10: Example topic based curriculum

XXXX Primary Curriculum Topics

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
KS1	1	Ourselves (All about me)	Festivals & Celebrations	Helping Hands	Animals	Homes	Shapes
	2	Senses	Festivals & Celebrations	Colour	Plants	My Neighborhood	Water
	3	Water Ourselves (All about me)	Festivals & Celebrations	My Neighbourhood Shapes	Colour Homes	Animals Plants	Senses Helping Hands
KS2	4	Ourselves (Me & my family)	Festivals & Celebrations	Shape	Eco	Food & Nutrition	Localities
	5	Colour	Festivals & Celebrations	Keeping Healthy	Transport	Weather/Seasons	Materials
	6	Ourselves (Me & my family)	Festivals & Celebrations	Localities	Shape	Eco	Food & Nutrition
	7	Keeping Healthy	Festivals & Celebrations	Weather/Seasons	Transport	Materials	Colour
	8	Occupations	Festivals & Celebrations	Materials	Keeping Healthy	Shape	Eco
	9	Ourselves (Me & my family) Colour	Festivals & Celebrations	Animals Transport	Shape Materials	Keeping Healthy Homes	Plants Weather/Seasons
10		Ourselves Homes	Festivals & Celebrations	Transport Senses	Water Weather/Seasons	Shape Materials	Homes Plants/Animals

10.11 Appendix 11: Teacher consent forms Study 2

Dear _____,

My name is Christina Kuegel and I am a senior lecturer and research student at the University of Bedfordshire. In conjunction with XXXX School I will be conducting a study to help understand the play skills of children with autism and I am asking for your participation in the research. I hope that by observing and analysing the play we can also help develop the methods that we use to teach children with autism and therefore support the children in your class to more fully enjoy the benefits of play.

The study will involve your participation in 1 interview about some of the children in your class. This will be audio recoded but will only be used to transcribe the conversations. I will also come into your classroom to video some of the children in your class. All the personal information that I collect will be kept confidential, destroyed after the study and will not be passed on to any third party in any form that you will be able to be identified. It is important that you know that it is not mandatory to participate and you can withdraw at any point in the study.

I will also make my findings available to you when I have completed my study. If you have any questions or concerns, please feel free to contact me at Christina.kuegel@beds.ac.uk or contact my supervisor at Janice.wearmouth@beds.ac.uk.

Thank you,

Christina Kuegel

Christina Kuegel

I, _____ would like to participate in the research investigating play.

Signature: _____ Date_____

10.12 Appendix 12: Observation Sheet

Date/Time_____

Child _____

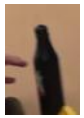
Object:

Time (min)	Brief description of what occurred (in order of occurrence)	Details of actions with object	Details of actions outside of the use of the object	Language- verbal and non- verbal	other
0.00					
0.30					
1:00					
1:30					
2:00					
2:30					
3:00					
3:30					
4:00					
4:30					
5:00					

Notes: Regarding location, attitude, interruptions, ethics

10.13 Appendix 13: Examples of observation data (Study 2)

Observation sheet

Child 3: Objects:  

Time (min)	Brief description of what occurred (in order of occurrence)	Details of actions with object (including fine and gross motor movements)	Details of actions outside of the use of the object (including fine and gross motor movements)	Language- verbal and non-verbal	other
0.00	Standing against cupboard holding object and rotating	Holding with two hands- lose grip. Looking forward, turns object slight left Pauses Moves object with slight wrist bend and there is a bang noise from yellow component. Repeats action. Flicking wrist down and making the yellow component hit the car three times. With one hand holding still, flicks wrist up twice to make a similar yet louder noise. Pauses, looking into the distance forward	Upper part of back leaning against cupboard and slight rocking motion		
0.30	Making movement and	Places other hand on the car. Holding toy with both hands out front, wheels –close to chest-	Leaning against cupboard	Movement in mouth with no sound	

	sounds with truck parts	making short quick movements up and down. Quick repetitive clanging noise six times Pauses, looking at the toy Alters direction so car is now horizontal continues to make short pumps with hand which incurs clanging noise. Pause Rotates hands for a fuller handed grip- continues in horizontal position of car with clanging noise with the cars yellow dump truck Looks at object Turns to the left facing camera continues to rotate truck to a horizontal position Slight loss of grip and then rotates to hold close to self. Car is touching chest. Pauses		Then long continues sounds with variation in tone. Almost word like	
1:00	Places object haphazardly on counter and then rolls it down the cupboard	Turns around towards shorter cupboard. Places car on counter with one hand, rotates slightly away, not looking at object, moves object forward. Slightly lifts car dumper with one hand, stops leaning on counter, continues to move truck forward slowly not looking at object and not moving body. Is leaning fully to move truck forward till reaching arm extension limit and moves truck backwards with same hand. Begins looking towards object. Moves forward with car and begins to move whole body forward two steps	Standing straight and leaning against cupboard. Then takes two steps		

1:30	Pushing digger along cupboards and then child notices adult-walks towards what adult places out and then returns to car	Places car on cupboard and pushes car to end of cupboard onto next cupboard whilst walking slowly alongside. Turns head to left to see teacher showing another resource to another child. Leaves toy and walks in direction of teacher, then around table, eyes are focused in the direction of object (pasta play). Gets very near to object then turns around to return to original toy.	Walking with object Walking towards another object but then returns		
2:00	Returns to toy pushes along	Walks slowly back to original toy. Grabs truck with left hand, whole hand, takes two steps back. Collects to chest then pushes outwards and says, 'are you ready'. Looking into the distance. Begins walking forward with a frown on face then places on cupboard and pushes with left hand forwards with large stroke and then back with small back and forth motion. Continues to look into the distance, past the object.	Walking back to object	States. "are you ready?"	Frowning
2:30	Moves truck forward with language	Still using left hand small pushes forward and back. Pulls trunk down, car tilts off side. Taps trunk twice. Takes truck with left hand off counter passes to right hand. Walks to camera and states a full question/statement and then states other question /statement. Unable to decipher words.	Learning back and elbow against cupboard	Inaudible phrases	Fleeting eye contact

3:00	Collects another two objects from food play objects	Turns and walks towards food play box with car in right hand up towards head and makes another statement/question. Pushes other hand into box ad briefly touches food play objects. Runs hand alongside box and walks around. Selects and object from the table (bottle). Makes another statement towards the camera- possibly "I am going to the market". Collects another identical toy bottle in the same hands. Places car on table with soft movement	Walking at an indoor slow pace with object close by. Walking around box of toy food Walks back to original play location	Some babbling that is clearly sentence structure but unable to decipher.	Once child spots the bottles child makes brief eye contact and then looks back at camera
3:30	Combines the bottle with the truck. Filling boot of digger trunk	Collects bottles and car and walks back to original cupboard with all three objects. Places them onto the counter. Bangs bottle once and places upright with left hand. With left hand attempts to turn car right side up. Pushes car forwards with fingers and then backwards. Stops and looks directly at the truck. Picks up bottle with left hand tips upside down into the yellow trunk of the car.			
4:00	Babbling with three objects combining them together	Continues to tap three times bottle upside down. Lays bottle down in trunk and slides truck forwards slowly. Eyes still on the object. Takes out bottle, places next to other bottle with soft whole hand grip left hand. Hand hits bottles and they fall over away from self. Attempts to stand them both back up unsuccessfully. Then take one and place it upright and then the other. Eyes still on	Small steps near object	Babbling Possibly states "bang"	

		objects. Grabs the car and rolls truck backwards with right hand almost up to bottles. Babbling at objects, pauses point's finger towards first bottle and then knocks it over with finger. Sounds like "bang" is stated when it falls			
4:30	Organising objects to upright position	Collects bottle with left hand. Right hand still next to toy truck and stands bottle up in front of truck. Turns car around so it is forward, facing the bottles. Then continues turning truck so the trunk is open and facing bottles. Pauses and collects bottle and turns upside down to tip into trunk of car. Taps three times against boot of truck. Truck is laying on its front bumper. Collects other bottle with one in each hand. Taps both on cupboard. Right falls over and is picked up. Both are left to stand whilst places car to the correct side up.			
5:00					

Notes: Regarding location, attitude, interruptions, ethics

It appears the child notices the camera and makes eye contact early in the observation. Staff member comes through the door and child turns towards the adult. The child moves to a newly placed object on a table. No ethical concerns observed in any actions

Child 5: Object (s) Paperback book, pasta shells

Time (min)	Brief description of what occurred (in order of occurrence)	Details of actions with object (including fine and gross motor movements)	Details of actions outside of the use of the object (including fine and gross motor movements)	Language- verbal and non verbal	other
0.00	Turns pages, moves away and returns	Child is standing at the window and a book is sitting on window ledge. Uses both hands to navigate (with full use of fingers on right hand) through pages and stops at title page. Left hand, two first fingers in mouth. Eyes looking at book. Tilts head to right. Uses right hand to reach over and select pasta shell from tray (behind) and moves towards mouth. Moves slightly back, puts both hands on head. Walks away from book then moves with speed towards PECS board. Selects image and then puts to mouth to take off blue tac in mouth. Researcher interruption and then spits out on floor. Returns computer picture to PECS board without blue tac and it falls to floor.	Standing at window ledge Walking away	No language limited expressions	Researcher stated "out" to get them to remove blue tac from mouth
0.30	Returns to book- chewing on pasta and looks at title page	Returns to book from PECS board with eyes towards the book. Puts pasta near mouth with left hand and then down by side. Moves head a little closer to the book. Looks away briefly. Puts right hand behind head, rubs back of head in circular motion. Staring directly at title page. Touches pasta with right finger and looks down	Leaning with elbow against window ledge. Window ledge in his shoulder height		

		at pasta. Taping past. Pasta gets stuck on finger briefly			
1:00	Looking at book briefly walks away and returns. Flapping of arm and then moves towards computer cupboard	Looks at camera. Tapping right wrist on ledge then taps lower part of arm. Stretches arm out and flaps (hits quickly) against window once. Slides arm down window both arms out front of him looking beside the book. Turns to the right flaps (quick flick of arm) right arm against head. Steps forward turns to the right makes a "whoo" sound that is very brief. Then walks to away from ledge and book to lean against a small space between computer cupboard and wall.	Turning and walking away from object.	Makes one clear up tempo, "whoo" sound.	
1:30	Leaves computer station to return to book	Makes a "whooee" sound and raises arm when coming up from cupboard space. Bangs elbow against computer cupboard (on left) flaps right arm at the same time. Right hand fingers are in mouth. Bangs cupboard with whole right arm. Puts pasta that was in hand to his mouth. Walks a few steps back to the window to make eye contact with title page of book. Lays head on window ledge and briefly looks out the window. Flaps arm twice against ledge, looks at book then looks towards camera but returns quickly to the books. Chewing pasta with left fingers in mouth. Collects five pieces of pasta from pocket and gathered under cupped left hand	Moving between window ledge and computer	Makes one sound possibly linked to action Briefly interrupted when a child asked if I need milk.	Asked teacher about pasta in mouth- Acceptable as it is fresh and the child can use.

2:00	Looking at book then turns a page	Puts one piece in mouth, chewing on pasta. Staring at the title page. Moves right hand down to tummy and back whilst staring at the book. Selects a couple of pages in right hand. Appears to get ready to turn and then returns to staring at title page, with right hand stretched out. Chewing pasta. Stretches hand out and puts it back on the book. Quickly turns one page of the book. Keeping eye contact. Bangs whole body against wall briefly. Keeps eye contact and continues look at book			
2:30	Closes book and walks across the room	Starts to turn page but returns to same page. Left fingers still in mouth with pasta. Turns page takes pasta out. Turns a hand full of pages quickly and then closes the book which falls from upright to horizontal on window ledge. Turns slightly with left with hand over book. Book slides off. Child looks down at book. Walks across room taking pasta out of mouth. Goes to look out classroom door near the window. One hand on cupboard next to door. Turns to lean against the door.	Walking across the classroom. Leaning against furniture	Same expression	
3:00	Moves to a different window location	Walks back across classroom to go towards books shelf. Leans against heater and looking out a window. Lays head on heater and rolls onto his back. Reaches hands above head. Rolls over to reach towards shelf and then stands up. Makes an “uh ooh” noise when standing	Not using an object in this frame- moving and lounging/rolling on furniture	one short sound	

3:30	Laying against heater looking out window	Leaning against heater looking towards another window. Walks towards original window and is interrupted by staff asking to tidy up. Returns to window near book case. Laying against heater looking out the window.			Brief staff interruption Second window view leads onto the kitchen space of the classroom
4:00	Laying on bookcase	Acknowledges loud sound with a look. Stands up puts fingers to his mouth. Holding on to book case leaning away looking out window. Pasta put into mouth and out of mouth.		Grinning facial expression	
4:30	Walking away	Briefly glances at books on book shelf with hand in his mouth turns and walks away. Walks a few steps pauses. Hand still to mouth. Walks and leans against wall. Taps head against wall corner. Turns walks away from wall past and hand goes to mouth	Walking		No contact with other object besides pasta
5:00					

Notes: Regarding location, attitude, interruptions, ethics

Briefly looks at camera Researcher was briefly interrupted by a child's question. Child was interrupted for health and safety concerns Teacher was asked about the safety of pasta in the mouth and this was allowed. No visible ethical concerns identified

Child 9: Object(s)-  

Time (min)	**Brief description of what occurred (in order of occurrence)**	**Details of actions with object (including fine and gross motor movements)**	**Details of actions outside of the use of the object (including fine and gross motor movements)**	**Language- verbal and non verbal**	**other**
0.00	Selects tools for play dough	Picks up paper with one hand puts down quickly. Reaches in box selects object with whole hand grip, moves one around to then select a green plunger. Takes hand out of box. Looks in box, looks at object in right hand. Selects another light green plunger with left hand and drops on table. Puts one of the papers in box with left hand. Pushing box with right hand. Takes container in both hands. Digs fingers in box with left hand, then holds with right. Head looking away from play dough	Sitting at a table on a chair. Very little movement besides small reaching during the video		
0.30	Attempts to take playdough out of container	Pushes chair a bit outwards then pushes in slightly. Collects with one hand and turns playdough pot upside down and shakes. Holds, makes eye contact with play dough and places finger of left hand in container. Looking away. Digs with one finger on edge of play dough. Switches hands and digs with pointer finger of		Mouth opening and closing without sound	Another child attempts engagement

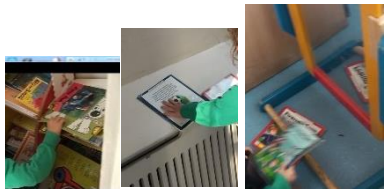
		other hand. Digs twice makes eye contact. Small bit sticking out and swaps hands to dig with left hand finger. Tries using a different finger. Another child comes over and makes attempt to touch playdough			
1:00	Attempting to take playdough out of another container	Slouches away from child and brings playdough closer to chest. Another child takes tool that was selected earlier. Observed child takes it with a full hand grip and puts it back on the table. Makes brief eye contact with object taken. Pushing play dough. Grabs another container of play dough with left hand, with other hand holding one container. Puts down first container and begins to dig into with finger the new container which has playdough in the container. Tips upside down with left hand making eye contact with container. Holds one in left hand and digs in other playdough on the table with fingers. Returns both hands to dig finger in the one in the left hand	Slouching away from child in chair		Another child attempts engagement
1:30	Repeating action	Using one finger then two to dig and a slight pull upwards. More pushing then pulling out. Repeats action four times. Then using two fingers to swipe around the edge of playdough container. Switches hands and swipes edges with other fingers.		Look of concentration-eyebrows slightly down	
2:00	Gets play dough out and selects tool	Digging with finger and thumb switches back and forth repeating same motion with fingers two more times. Stops. The remaining play dough is removed with one hand from container then looks at the container and puts it down.			Slight interruption by another child putting head across video

		Reaches for the lid but puts it down. Places playdough between two hands. Pulls off a small piece and another larger chunk. Places larger chunk on the table. Selects the plunger with the right hand. Looks in box.			
2:30	Filling plunger tool	Puts finger into plunger tool. Uses both hands to turn over. Picks up play dough with left hand and begins to put into plunger. Pushes in with thumb. Making eye contact with object. Continues holding still the plunger and selects more play dough to push in. Uses a multi-tasking approach by holding play dough and picks a chunk off of the large ball of play dough with pincher fingers. Selects whole ball and attempts to place ball into plunger but it is too large to fit. Puts plunger down and breaks apart the playdough. Pushes appropriate amount more into plunger with strong force			Brief interruption
3:00	Filling tool	Plunger is full. Selects another small piece of playdough pushes it in then takes some off and puts on table. Selects different piece from large playdough ball. Uses thumb and pointer to push in. Looks over into box. Leans forward with chest and reaches.	Leaning		
3:30	Attempts to plunge playdough	Selects the plunger tool, drops on table. Returns to pushing playdough with fingers then moves plunger to other hand and begins pushes another large ball with other hand into plunger. Large ball does not fit then places it on the table with plunger in hand. Picks up plunge tool and attempts to put with larger end in first then turns		Frustrated facial expressions	Asked to 'spit out' by researcher. TA cleans up spit

		over to put correct end in. Pushes in slightly and gets a small bit of playdough on plunger. Puts it towards their mouth and puts play dough in mouth. Directed to spit out and does so into hand. Rolls play dough in hand along mouth and then drops on the table.			
4:00	Pushing plunger	Pushes plunger in very slowly, looking elsewhere pushes in with pointer finger. Pushing in multiple times (six). Both hands on plunger.			
4:30	Attempting to plunge and fill	Again, goes to put plunger in upside down and but turns around. Pushes and opens mouth. Touches hand to face and makes a short sharp "ahh" noise. Again, pushes and opens mouth and closes. Interrupted with a "No". Puts down towards table. Holds plunger with one hand and goes to collects more play dough. Puts hand back on other tools and takes plunger out. Pushing though and takes the small amount of play dough that comes back out with plunge toy and puts on table. Returns to play dough container and puts finger in to select a small piece of playdough. Pushes in with fingers. Pushes in and picks pieces that are sticking beyond end of filled plunger		Brief noise	Interrupted at mouth point with a 'No'
5:00					

Notes: Regarding location, attitude, interruptions, ethics

Staff member and children momentarily interrupt his movements throughout. Due to safety it was necessary to get the child to remove play dough from mouth or interrupt play dough moving towards the mouth. No visible ethical concerns.

Child 10: Object(s): 

Time (min)	Brief description of what occurred (in order of occurrence)	Details of actions with object (including fine and gross motor movements)	Details of actions outside of the use of the object (including fine and gross motor movements)	Language- verbal and non verbal	other
0.00	Moving books around from shelf to floor with body	Kneeling at the book shelf. Takes two books off the shelf and puts on the floor. Using one hand. Takes paper book off shelf and puts back onto shelf then on to floor. Picks up book, putting it back down on shelf. Moves eye contact to shelf and reaches to another shelf. Pushes up one book. Begins to use two hands to push up books against back of book shelf. A few begin to fall and child blocks with both arms. Then pushes one to the floor with elbow.	Kneeling	Smiling	
0.30	Collecting books and moving to other books to collect	Slides, with two flat hands, all the books from the shelf onto the floor between legs. Turns behind. Selects one book and leans against self to get up from knees. Turns and places book to mouth with both hands. Holding book in both hands near to	Walking		

		face then letting the book transfer to right hand holding with whole hand. Puts on the table. Stands and walks half way around table towards another set of two books. Looking in the direction of the books. Touches book with whole hand. Turns book to face forward. Slides over and then turns over with both hands. Looking in the direction of the back of the book. Picks up both books with separate hands. Begins to walk away from table. Knocks over toy on table with arm, looks back at toy			
1:00	Moving location with books	One small, two-foot jump continued by fast walking with books in both hands. Moves around to another corner area of the classroom. Walking and looking at both books held out front with both hands. Leans book against chair. Briefly looks then collects and walks away placing books by hips. Looks at the cover of one book upside down. Makes a "uhhhah" sound and runs to the table with both books. Places both books on the table. Turns books over twice picks them both up in one hand and turns around	Walking	Makes brief "uhhhah" sound	Big smile across face
1:30	Dropping books on the floor and opening	Drops one book on the floor and drops the other book onto the floor. Squats down and looks at the back of both books with one hand on the book. Then taps chest. Turns over one book. Opens book with one hand slide. Looking at the direction of the pictures. Moves other book with hand. Closes original book and looking at cover. Leans forwards then places hands between knees	Bending down		

2:00	Opening books and moving location. Combing object with the heater	Rocking forward multiple times. Leans to book, opens cover then also opens other book cover. Turns one page, looks, closes page closes book. Then closes second book. Turns over and picks up one book, puts on the ground next to each other and collects books with separate hands. Stands up. Walks a few steps places both on heater making eye contact with books. Moves the books slightly up and down on heater, holding with both hands and lets them fall by sliding off the slanted edge of heater	Rocking Walking to another location		
2:30	Sliding books off of the heater	Picks one book up turns to back cover, looks, places on heater. Slaps book with whole hand. Pushes up slightly and lets book fall to ground. Laughs and leans forward. Picks up both books with fingers loosely. Places one book on heater. Drops one book. Book has opened so that the cover is bent over. Closes book stopping to look at back cover. Places book on the ground next to the other fallen book. Slides books forward and bends to knees. Looking at back cover. Briefly looks away. Picks up one book, jostles from one hand to the next looking at the book on the floor. Collects other book and stands	Moves from sitting to bent knees and then stands	Laughing	
3:00	Repeating, looking at books and allowing them to fall off heater	Turns and places both books on the heater and looks at back covers on to the heater. Pause. Lets one book fall onto the floor and then very slowly guides the other to fall holding it until right before the floor. Bends down and collects one book. Passes to other hand and collects other book. Places both on heater and pauses, then lets both	Moves from standing to sitting on the floor		

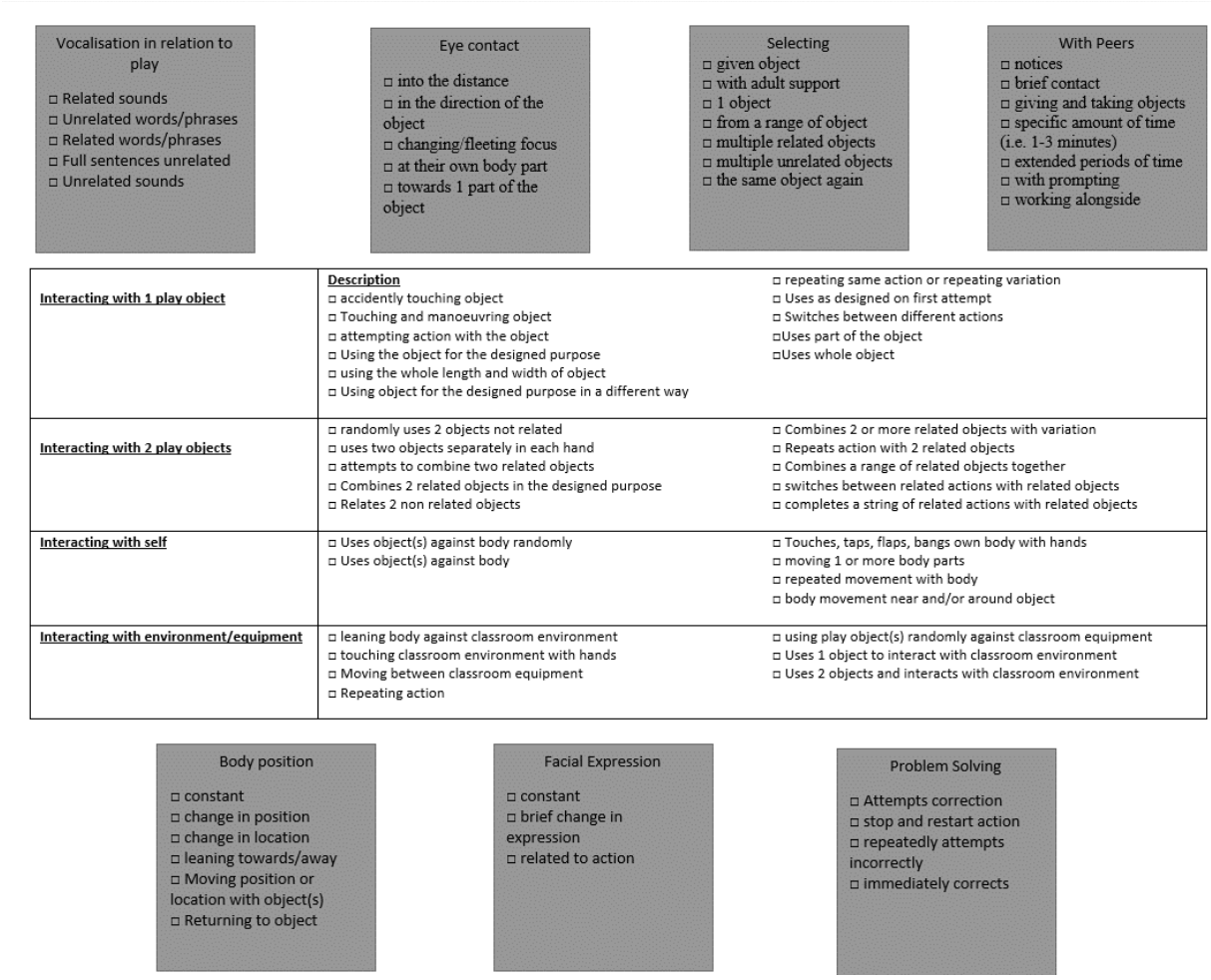
		books fall to the ground. Bends down and sits on the floor. Opens one book from the end of story. Closes book looks at back cover. Itches face			
3:30	Touching books and opening books	Taps one book with four fingers then the next. Turns book to front, opens book cover with one hand touching and other opening. Turns over other book opens to first pages, scratches eye, turns to next page, closes book. Closes first book. Sets up one book to balance against bottom of heater with both hands. Using a steady and slow movement			
4:00	Puts paper in mouth then gathers boos and moves location	Reaches for a small slip of paper on the floor passes quickly from one hand to the next and puts towards mouth. Falls from hand to ground, collects, puts into mouth. Asked to remove with "out". Pauses and spits out. Bends and collects two books and puts against heater. Stands. Holds books stacked together in left arm. Walks to table begins tilting books looking at back cover. Drops both on table. Opens to first page, pause. Closes book. Opens to first page then turns page again. Turns back then closes cover.	Moves to standing position and walks to table		Asked to remove paper from mouth with the words "out".
4:30	Looking at books then moves and passes books between large classroom equipment	Haphazardly opens to back page then closes back cover. Turns other book over. Looks at back cover of books. Collects both against body in separate hands. Stacks against body, walks away from table. Walks over to mirror looks in mirror. Holds books against body. Bends down drops books and then slides them through the bottom bar of mirror one at a time.	Moves from table to mirror Bending		

5:00					

Notes: Regarding location, attitude, interruptions, ethics

Very little notice of camera or others around their location No visible ethical concerns

10.14 Appendix 14: Draft ideas on framework layout

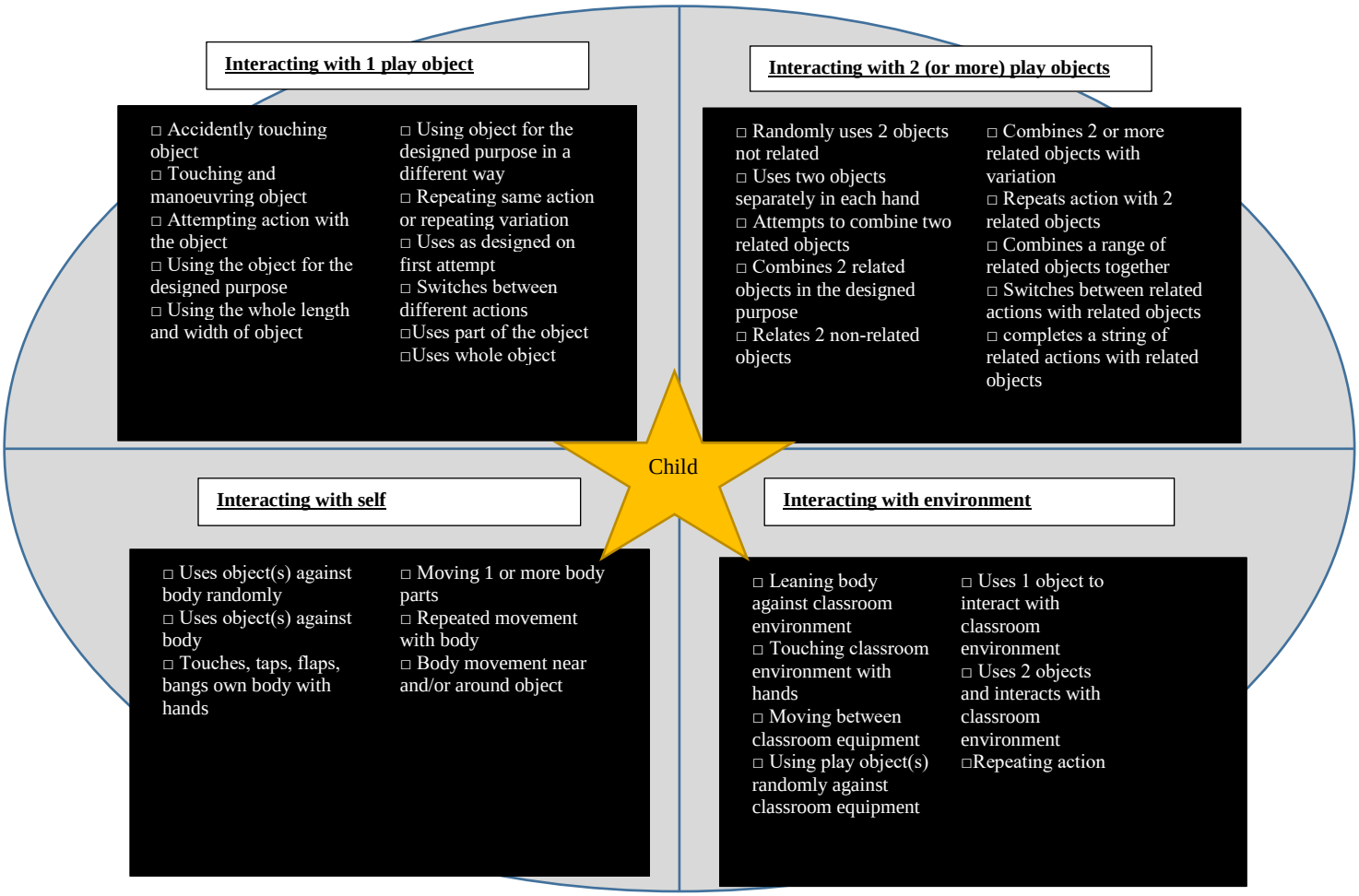


10.15 Appendix 15: Framework at the end of Study 2

Functional Play for children with autism and SLD

- This resource has been developed based on the observation of play for pupils with autism and severe learning difficulties
- To encourage a comprehensive approach to functional play, try to consider all areas of the resources. Children might cover more than 1 area in each box or they might not cover any.
- You might consider using the resource to:
    - support your understanding of functional play for children with autism
    - vary the skills you encourage children to complete during their play
    - provide a baseline for play ability
    - plan individual targets for development in the area of play

- Functional play is defined here as 'using an object as its function denotes'. For example, using a toy train along a train track or rolling a car along the table. Some might also call this 'object play'. This is usually around the P4 level before children begin imaginative/pretend/symbolic play.
- Remember to consider the object (traditional and non-traditional) the child is using as some resources do not encourage deeper engagement



Other areas that can be considered alongside play with objects, self and the environment

Eye contact
- □ into the distance
- □ in the direction of the object
- □ towards 1 part of the object
- □ changing/fleeting focus
- □ at their own body part

Selecting
- □ given object
- □ with adult support
- □ 1 object
- □ from a range of object
- □ multiple related objects
- □ multiple unrelated objects
- □ the same object again

Body position
- □ constant
- □ change in position
- □ change in location
- □ leaning towards/away
- □ moving position or location with object(s)
- □ returning to object

Facial Expression
- □ acknowledging sound
- □ constant
- □ brief change in expression
- □ related to action

Amount of time playing
- □ not engaged
- □ momentarily
- □ briefly
- □ specific amount of time (i.e. 1-3 minutes)
- □ extended period of time

Location
- □ inside the classroom
- □ in a specific area of the classroom
- □ outdoors
- □ in a specific room in the school

Problem Solving
- □ attempts correction
- □ stop and restart action
- □ repeatedly attempts incorrectly
- □ immediately corrects

Vocalisation
- □ sounds unrelated to play
- □ sounds related to play
- □ words/phrases unrelated to play
- □ words/phrases related to play
- □ repetition in sounds/words/phrases

With Peers/staff
- □ notices
- □ brief contact
- □ working alongside
- □ giving and taking objects
- □ specific amount of time (i.e. 1-3 minutes)
- □ extended periods of time
- □ with prompting

Object preferences
- □ does not have preference
- □ has 1 preferred object
- □ preference for objects with specific characteristics
- □ multiple preferences
- □ accepts change with preferred object

Comparison
- □ similar play to children of same age
- □ similar play to children of same age and SEND
- □ some play characteristics of children of same age and SEND
- □ unlike play of children of same age and SEND

10.16 Appendix 16: Interview guide Study 3

Pre-Interview Questions

How are you? How was your day? How is the year going? How long have you been teaching? How are your students? Why did you decide to get involved in this research?

Use of framework

1. How did you use the framework? (planning sessions, IEP, 1 to 1, group work, baseline, etc)
2. How often did you use it? (frequency)
3. What children did you use it with?
4. Did anyone else use it? (if so How?)

Usability of the framework

1. In future, would use it in any other way?
2. Could this framework be used across the school? (If so how? If not, why?)
3. What part of the framework was most difficult to understand?
4. What is your opinion of the layout of the content?
5. Do you feel further instructions are needed on the cover page?

Reliability and validity of the framework

1. Does the content cover all areas of functional play that you observed? (any play actions missing, small enough increments)
2. Can you demonstrate small increments of progress? (any examples?)
3. Does it represent the progress of development in children with asd?
4. Does it accurately describe FP?

Overall Recommendations for the framework

1. What would you add to the framework?
2. What would you remove from the framework?

Overall comments

1. Have you used any other play frameworks/categories before? How does this framework compare?
2. What is your overall opinion on the framework?
3. Has your knowledge of functional play developed from using the framework? (How?)

Prompting is in brackets- any limitations identified will seek recommendations and further explanations

10.17 Appendix 17 Final functional play framework and variation framework for children with autism and SLD

Functional Play Framework for Children with Autism and Severe Learning Difficulties

- This play framework has been developed based on the observation of play for pupils with autism and severe learning difficulties
- To encourage a comprehensive approach to functional play, try to consider all areas of the resources. Children might cover more than 1 area in each box or they might not cover any. The process might not be linear.
- There are 4 main areas: Play with 1 object, play with 2 (or more) objects, interacting with self (touch parts of the body), and interacting with the environment (such as large classroom equipment- walls, mirrors, chairs etc).
- Alongside these key areas there are other components that you might consider during play such as eye contact, the amount of time the child spends play, problem solving etc.
- You might consider using the resource to:
  - support your understanding of functional play for children with autism
  - vary the skills you encourage children to complete during their play
  - provide a baseline for play ability
  - plan individual targets for development in the area of play
  - assist in planning for teaching assistants
  - set IEP play targets
  - share evidence with parents/Ofsted
- Remember to consider the object the child is using. Some resources encourage deeper engagement or more actions than others. Also think about the type of toy or object: traditional toys (cars, blocks etc) or non-traditional object (string, tissue etc.).
- Functional play is defined here as 'using an object as its function denotes'. For example, using a toy train along a train track or rolling a car along the table. Some might also call this 'object play'. This is usually around the P4 level before children begin imaginative/pretend/symbolic play.

FUNCTIONAL PLAY FRAMEWORK

1 PLAY OBJECT

- ☐ Accidentally touching object
- ☐ Attempting action with the object
- ☐ Touching and maneuvering object with intent
- ☐ Using part of the object
- ☐ Using the whole object
- ☐ Using the object for the designed purpose
- ☐ Using the object for the designed purpose in a different way
- ☐ Repeating same action or repeating a variation of action
- ☐ Using the object as designed on first attempt ☐ Switching between different actions

2 OR MORE PLAY OBJECTS

- ☐ Randomly using 2 objects that are not related
- ☐ Using two objects separately in each hand
- ☐ Relating 2 non-related objects
- ☐ Attempting to combine 2 related objects
- ☐ Combining 2 related objects in the designed purpose
- ☐ Combining 2 or more related objects with variation
- ☐ Repeating action with 2 related objects
- ☐ Combining a range of related objects together
- ☐ Switching between related actions with related objects
- ☐ Completing a string of related actions with related objects

WITH SELF

- ☐ Moving 1 or more body parts
- ☐ Touches, taps, flaps, bangs own body with hands
- ☐ Body movement near and/or around object
- ☐ Using object(s) against body randomly
- ☐ Using object(s) against body with intent
- ☐ Repeated movement with body

WITH ENVIRONMENT

- ☐ Leaning body against classroom environment
- ☐ Touching classroom environment with hands
- ☐ Moving between classroom equipment
- ☐ Using play object(s) randomly against classroom equipment
- ☐ Using 1 object to interact with classroom environment
- ☐ Using 2 objects to interact with classroom environment
- ☐ Repeating action

OTHER AREAS THAT CAN BE CONSIDERED ALONGSIDE PLAY WITH OBJECTS, SELF AND THE ENVIRONMENT

Eye contact
- ☐ into distance
- ☐ in the direction of the object
- ☐ towards 1 part of the object
- ☐ changing/fleeting focus
- ☐ at their own body part

Selecting
- ☐ given object
- ☐ with adult support
- ☐ 1 object
- ☐ from a range of object
- ☐ multiple related objects
- ☐ multiple unrelated objects
- ☐ the same object again

Body position
- ☐ constant
- ☐ change in position
- ☐ change in location
- ☐ leaning towards/away
- ☐ moving position or location with object(s)
- ☐ returning to object

Facial Expression
- ☐ constant
- ☐ brief change in expression
- ☐ related to action

Amount of time playing
- ☐ not engaged
- ☐ momentarily
- ☐ briefly
- ☐ specific amount of time (i.e. 1-3 minutes)
- ☐ extended period of time

Location
- ☐ inside the classroom
- ☐ in a specific area of the classroom
- ☐ outdoors
- ☐ in a specific room in the school

Problem Solving
- ☐ attempts correction
- ☐ stop and restart action
- ☐ repeatedly attempts incorrectly
- ☐ immediately corrects

Vocalisation
- ☐ sounds unrelated to play
- ☐ sounds related to play
- ☐ words/phrases unrelated to play
- ☐ words/phrases related to play
- ☐ repetition in sounds/words/phrases

Object preferences
- ☐ does not have preference
- ☐ has 1 preferred object
- ☐ preference for objects with specific characteristics
- ☐ multiple preferences
- ☐ accepts change with preferred object

With Peers/staff
- ☐ notices
- ☐ brief contact
- ☐ working alongside
- ☐ giving and taking objects
- ☐ specific amount of time (i.e. 1-3 minutes)
- ☐ extended periods of time
- ☐ with prompting

Comparison
- ☐ similar play to children of same age
- ☐ similar play to children of same age and SEND
- ☐ some play characteristics of children of same age and SEND
- ☐ unlike play of children of

Enjoyment
- ☐ demonstrates very little enjoyment
- ☐ demonstrates some enjoyment
- ☐ neutral
- ☐ demonstrates full enjoyment
- ☐ not enjoying

10.18 Appendix 18 Final functional play framework

Functional Play Framework for Children with Autism and Severe Learning Difficulties

- This play framework has been developed based on the observation of play for pupils with autism and severe learning difficulties
- To encourage a comprehensive approach to functional play, try to consider all areas of the resources. Children might cover more than 1 area in each box or they might not cover any. The process might not be linear.
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